

=> fil reg
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DICTIONARY FILE UPDATES: 10 MAR 2010 HIGHEST RN 1208531-15-0

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<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d ide can l2

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN
RN 92-52-4 REGISTRY
ED Entered STN: 16 Nov 1984
CN 1,1'-Biphenyl (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Biphenyl (8CI)
OTHER NAMES:
CN 1,1'-Diphenyl
CN Bibenzene
CN Carolid AL
CN Diphenyl
CN NSC 14916
CN Phenylbenzene
CN Tetrosin LY
DR 1135443-72-9, 56481-93-7, 72931-46-5
MF C12 H10
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOSIS, BIOTECHNO, CA,
CABA, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST,
CHEMSAFE, CIN, CSCHM, CSNB, DETHERM*, EMBASE, ENCOMPLIT, ENCOMPLIT2,
ENCOMPPAT, ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIADB, IPA,
MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, PIRA, PROMT, PS, RTECS*, SPECINFO,
SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

45440 REFERENCES IN FILE CA (1907 TO DATE)
 28540 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 45566 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 152:246744
 REFERENCE 2: 152:246550
 REFERENCE 3: 152:246518
 REFERENCE 4: 152:246393
 REFERENCE 5: 152:246392
 REFERENCE 6: 152:246363
 REFERENCE 7: 152:246137
 REFERENCE 8: 152:246063
 REFERENCE 9: 152:245806
 REFERENCE 10: 152:245765

=> d ide can 13

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN
 RN 927-52-1 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN Benzene, cyclohexyl- (CA INDEX NAME)
 OTHER NAMES:
 CN 1,1'-Biphenyl, 1,2,3,4,5,6-hexahydro-
 CN 4-Cyclohexylbenzene
 CN Cyclohexane, phenyl-
 CN Cyclohexylbenzene
 CN NSC 40473
 CN NSC 69101
 CN Phenylcyclohexane
 MF C12 H16
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOSIS, CA, CAPLUS,
 CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CSCHEM, CSNB,
 DETHERM*, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*,
 IFICDB, IFIPAT, IFIUDB, MEDLINE, PIRA, PROMT, PS, RTECS*, SPECINFO,
 SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFULL, USPATOLD
 (*File contains numerically searchable property data)
 Other Sources: EINECS**, NDSL**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1716 REFERENCES IN FILE CA (1907 TO DATE)
50 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1722 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 152:243759
REFERENCE 2: 152:243030
REFERENCE 3: 152:241926
REFERENCE 4: 152:218032
REFERENCE 5: 152:203249
REFERENCE 6: 152:196470
REFERENCE 7: 152:191796
REFERENCE 8: 152:168659
REFERENCE 9: 152:144326
REFERENCE 10: 152:127506

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 10:36:57 ON 11 MAR 2010
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FILE LAST UPDATED: 10 Mar 2010 (20100310/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2009

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2009.

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L105 ANSWER 1 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2010:169650 HCAPLUS Full-text

DN 152:243759

TI Secondary nonaqueous electrolyte batteries and devices using the batteries
IN Watanabe, Shoichiro; Iwamoto, Kazuya; Ueda, Atsushi; Nunome, Jun; Koshina, Hizuru

PA Panasonic Corporation, Japan

SO Jpn. Tokyo Koho, 16pp.; Chemical Indexing Equivalent to 134:103242 (WO)
CODEN: JTXFFF

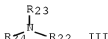
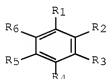
DT Patent

LA Japanese

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 4411691	B2	20100210	JP 1999-184931	19990630 <--
	JP 2001015158	A	20010119		
	WO 2001003226	A1	20010111	WO 2000-JP4291	20000629 <--
	W: CN, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1215745	A1	20020619	EP 2000-940876	20000629 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
	CN 1190864	C	20050223	CN 2000-806979	20000629 <--
	JP 2002050398	A	20020215	JP 2001-166615	20010601 <--
	JP 3633510	B2	20050330		
	KR 2007037749	A	20070406	KR 2007-705770	20070313 <--
	US 20080014496	A1	20080117	US 2007-780317	20070719 <--
	JP 2010027616	A	20100204	JP 2009-229435	20091001 <--
FRAI	JP 1999-184931	A	19990630	<--	
	WO 2000-JP4291	W	20000629	<--	
	US 2001-959429	A1	20011025	<--	
	KR 2001-713915	A3	20011030	<--	

GI



AB The batteries have Li containing multiple oxide cathodes, Li intercalating anodes, and a nonaq. electrolyte solution in a solvent containing ≥ 1 organic compound, which has HOMO energy -8.5 to -11.0 eV and LUMO energy -0.135 to 3.5

eV. The compound is preferably a benzene derivative I (R1-6 = H alkyl, aryl, or amino groups, but not all R's being H; and neighboring alkyl groups may join together to form a 5- or 6-membered ring); a substituted ethylene II (R11-14 = H, alkyl, alkoxy, aryl, or oxycarbonyl R15OCO group; and alkyl substituents on the same C atom may joined together to form a 5- or 6-membered ring); or an amine derivative III (R21-23 = alkyl or aryl groups). The devices may be elec. or electronic devices.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery electrolyte solvent org compd
 IT Battery electrolytes
 (electrolyte solns. containing organic compound having controlled HOMO
 and LUMO energy for secondary lithium batteries)
 IT 77-73-6 80-62-6 91-21-4 91-73-6 92-52-4, 1,
 1'-Biphenyl, uses 92-54-6 92-94-4,
 1,1':4',1''-Terphenyl 110-02-1, Thiophene 111-02-4 477-75-8
 513-81-5 612-71-5 613-31-0 620-40-6 695-12-5 764-99-8
 827-52-1 855-38-9 926-02-3 992-04-1 1087-02-1 1192-37-6
 1321-74-0, uses 1610-39-5 1633-22-3 7785-70-8 17249-80-8
 18794-84-8
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO
 and LUMO energy for secondary lithium batteries)
 IT 96-49-1, 1,3-Dioxolan-2-one 105-58-8
 21324-40-3 51013-18-4
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO
 and LUMO energy for secondary lithium batteries)
 IT 92-52-4, 1,1'-Biphenyl, uses
 827-52-1
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO
 and LUMO energy for secondary lithium batteries)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IT 96-49-1, 1,3-Dioxolan-2-one 105-58-8
 21324-40-3
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO
 and LUMO energy for secondary lithium batteries)
 RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L105 ANSWER 2 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2008:974494 HCAPLUS Full-text

DN 149:271523

TI Nonaqueous electrolyte secondary battery

IN Murai, Tetsuya

PA Sanyo Electric Co., Ltd., Japan

SO U.S. Pat. Appl. Publ., 39pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP1	US 2008019395Z	A1	20080814	US 2007-883577	20070802 <--
EPAI	WO 2006-JP1830	W	20060203	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A nonaq. electrolyte secondary battery has a pos. electrode containing a lithium complex oxide, a neg. electrode which adsorbs/desorbs lithium, and an electrolyte, and not less than 0.1% by mass and not more than 2% by mass of one or more kinds of compds. selected from LiFOB and LiBOB, or not less than 0.01% by mass and not more than 2% by mass of LiBF₄, and not less than 0.1% by mass and not more than 4% by mass of an aromatic compound, resp. relative to the total mass of the electrolyte, are added to the electrolyte in order to suppress decrease in the charge/discharge cycle life property and swelling of a battery when left in high temperature environments.

INCL 429326000; 429231950; 429330000; 429331000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte secondary battery
 IT Anhydrides
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cyclic; nonaq. electrolyte secondary battery)
 IT Secondary batteries
 (nonaq. electrolyte secondary battery)
 IT 108-30-5, Succinic anhydride, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 92-52-4, Biphenyl, uses 96-49-1, Ethylene
 carbonate 100-41-4, Ethylbenzene, uses 105-58-8, Diethyl
 carbonate 108-88-3, Toluene, uses 115-86-6, Triphenyl phosphate
 321-60-8, 2-Fluorobiphenyl 330-84-7, 4-Fluorodiphenyl ether 452-10-8,
 2,4-Difluoroanisole 616-38-6, Dimethyl carbonate
 827-52-1, Cyclohexylbenzene 872-36-6,
 Vinylene carbonate 2049-95-8, tert-Amylbenzene 4427-92-3,
 Phenyl ethylene carbonate 4427-96-7, Vinyl ethylene carbonate
 12031-65-1, Lithium nickel oxide (LiNiO₂) 12057-17-9, Lithium manganese
 oxide (LiMn₂O₄) 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 14283-07-9, Lithium tetrafluoroborate 217309-43-8, Cobalt
 lithium manganese nickel oxide (Co_{0.3}LiMn_{0.3}Ni_{0.4}O₂) 244761-29-3,
 Lithium bisoxalatoborate 409071-16-5
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 92-52-4, Biphenyl, uses 96-49-1, Ethylene
 carbonate 105-58-8, Diethyl carbonate 616-38-6,
 Dimethyl carbonate 827-52-1, Cyclohexylbenzene
 872-36-6, Vinylene carbonate 4427-92-3, Phenyl
 ethylene carbonate 4427-96-7, Vinyl ethylene carbonate
 14283-07-9, Lithium tetrafluoroborate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



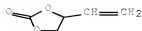
RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 4427-92-3 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-phenyl- (CA INDEX NAME)



RN 4427-96-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

L105 ANSWER 3 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2008:801519 HCAPLUS Full-text

DN 149:108311

TI Cyclic carbonate electrolyte solutions containing aromatic compounds and secondary batteries

IN Horiuchi, Hiroshi; Ihara, Masayuki; Yamaguchi, Hiroyuki; Kubota, Tadahiko

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 34pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2008153096	A	20080703	JP 2006-340828	20061219 <--
PRRAI	JP 2006-340828		20061219	<--	

AB The title electrolyte solns. contain cyclic carbonates containing ≥ 2 halogen elements as a solvent, electrolyte salts, and aromatic compds. Batteries comprising the above claimed electrolyte solns. are also claimed. Si, Sn, or their alloys or their compds. may be used for anodes. Batteries with excellent overcharging properties are obtained.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery electrolyte fluoro cyclic carbonate solvent; secondary

battery electrolyte arom compd cyclic carbonate

IT Carbonaceous materials (technological products)

RL: TEM (Technical or engineered material use); USES (Uses)

(anode; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)

IT Battery electrolytes

Secondary batteries

(cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)

IT Aromatic compounds

RL: TEM (Technical or engineered material use); USES (Uses)

(cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)

IT Carbonates, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(cyclic, solvents; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)

IT Silicon alloy, nonbase

Tin alloy, nonbase

RL: TEM (Technical or engineered material use); USES (Uses)

(anode; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)

- IT 7439-93-2, Lithium, uses 7440-21-3, Silicon, uses 7440-21-3D, Silicon, compds. 7440-31-5, Tin, uses 7440-31-5D, Tin, compds.
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anode; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)
- IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexylbenzene 2049-95-8, tert-Pentyl benzene 26140-60-3, Terphenyl
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)
- IT 21324-40-3, Lithium hexafluorophosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte salt; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 872-36-6, Vinylene carbonate 171730-81-7, 4,5-Difluoro-1,3-dioxolan-2-one
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solvents; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)
- IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexylbenzene
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)
- RN 92-52-4 HCAPLUS
- CN 1,1'-Biphenyl (CA INDEX NAME)



- RN 827-52-1 HCAPLUS
- CN Benzene, cyclohexyl- (CA INDEX NAME)



- IT 21324-40-3, Lithium hexafluorophosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte salt; cyclic carbonate electrolyte solns. containing aromatic compds. in secondary batteries for excellent overcharging properties)
- RN 21324-40-3 HCAPLUS
- CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 96-43-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 872-36-6, Vinylene carbonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solvents; cyclic carbonate electrolyte solns.
 containing aromatic compds. in secondary batteries for excellent
 overcharging properties)
 RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



L105 ANSWER 4 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:1399760 HCAPLUS Full-text

DN 148:82072

TI Method for stabilizing color of nonaqueous lithium ion battery electrolyte

IN Chen, Ming

PA Byd Company Limited, Peop. Rep. China

SO Faming Zhuanli Shengqing Gongkai Shuomingshu, 7pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 101081337	A	20071205	CN 2006-10061015	20060601 <--
PRAI	CN 2006-10061015		20060601	<--	
AB	The title method comprises flowing prepared nonaq. lithium ion battery electrolyte through silica gel column filled with silica granules (grain size = 0.5-8 mm, and average pore size = 1-5 nm), and preserving the treated nonaq. electrolyte in sealed PE, PP, PTFE or stainless steel bottles at 30°C in nitrogen (or inert gas) for protecting from light. The nonaq. solvent for nonaq. electrolyte is selected from at least one of ethylene carbonate, di-Bu carbonate, di-Et carbonate, di-Me carbonate, THF, Et formate, Me formate, Et acetate, etc. Li salt for nonaq. electrolyte is selected from at least one of LiPF ₆ , LiBF ₄ , LiAsF ₆ , LiSbF ₆ , and LiCF ₃ SO ₃ . The chrominance of the inventive lithium ion battery electrolyte is less than 15 APHA in 180 days.				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	Section cross-reference(s): 49				
ST	lithium ion battery electrolyte color stabilization				
IT	Secondary batteries (lithium; method for stabilizing color of nonaq. lithium ion battery electrolyte)				
IT	Battery electrolytes Discoloration prevention Stability (method for stabilizing color of nonaq. lithium ion battery electrolyte)				
IT	Silica gel, uses RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses) (method for stabilizing color of nonaq. lithium ion battery electrolyte)				
IT	Fluoropolymers, uses RL: TEM (Technical or engineered material use); USES (Uses) (method for stabilizing color of nonaq. lithium ion battery electrolyte)				
IT	92-52-4, Biphenyl, uses 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-90-7, Chlorobenzene, uses 109-94-4, Ethyl formate 109-99-9, THF, uses 141-78-6, Ethyl acetate, uses 512-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate 627-52-1, Phenylcyclohexane 372-36-6, Vinylene carbonate 1120-71-4, 1,3-Propane sultone 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate				

29935-35-1, Lithium hexafluoroarsenate 33454-82-9,
Lithium trifluoromethane sulfonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(method for stabilizing color of nonaq. lithium ion battery
electrolyte)

IT 9002-84-0, Polytetrafluoroethylene 9002-88-4, Polyethylene 9003-07-0,
Polypropylene 12597-68-1, Stainless steel, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(method for stabilizing color of nonaq. lithium ion battery
electrolyte)

IT 92-52-4, Biphenyl, uses 96-49-1, Ethylene
carbonate 105-58-8, Diethyl carbonate 542-52-9,
Dibutyl carbonate 616-39-6, Dimethyl carbonate
927-52-1, Phenylcyclohexane 872-36-6,
Vinylene carbonate 14283-07-9, Lithium tetrafluoroborate
18424-17-4, Lithium hexafluoroantimonate 21324-40-3,
Lithium hexafluorophosphate 29935-35-1, Lithium
hexafluoroarsenate 33454-82-9, Lithium trifluoromethane
sulfonate

RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(method for stabilizing color of nonaq. lithium ion battery
electrolyte)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



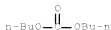
RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 542-52-9 HCAPLUS

CN Carbonic acid, dibutyl ester (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RN 18424-17-4 HCAPLUS
 CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

L105 ANSWER 5 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:1277956 HCAPLUS Full-text

DN 147:525343

TI Nonaqueous electrolyte solution and secondary nonaqueous electrolyte battery

IN Fujii, Takashi; Shima, Noriko; Ohashi, Youichi; Kinoshita, Shinichi

PA Mitsubishi Chemical Corporation, Japan

SO PCT Int. Appl., 241 pp.

CODEN: PIXXD2

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	WO 2007126068	A1	20071108	WO 2007-JP59207	20070427 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	JP 2007299541	A	20071115	JP 2006-124042	20060427 <--
	JP 2007299542	A	20071115	JP 2006-124044	20060427 <--
	JP 2007299543	A	20071115	JP 2006-124045	20060427 <--
	JP 2007317654	A	20071206	JP 2007-118487	20070427 <--
	JP 2007317655	A	20071206	JP 2007-118488	20070427 <--
	EP 2012386	A1	20090107	EP 2007-742642	20070427 <--
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, RS				
	CN 101432923	A	20090513	CN 2007-80015008	20081027 <--
	KR 2008111139	A	20081222	KR 2008-728011	20081117 <--
	US 20090325065	A1	20091231	US 2009-298440	20090211 <--
PRA1	JP 2006-124041	A	20060427	<--	
	JP 2006-124042	A	20060427	<--	
	JP 2006-124043	A	20060427	<--	
	JP 2006-124044	A	20060427	<--	
	JP 2006-124045	A	20060427	<--	
	WO 2007-JP59207	W	20070427		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB	The battery has a Li-intercalating anode containing an anode active mass which comprises ≥ 1 atom selected from Si, Sn and Pb, and an electrolyte solution; where the electrolyte solution contains a carbonate containing an unsatd. bond and/or a halogen atom, and at least one compound selected from compds. (A), (B), (C), (D) and (E) specified in the description.				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	secondary battery anode silicon tin lead; battery electrolyte carbonate lithium salt anhydride				
IT	Battery anodes				
	Battery electrolytes				
	(electrolyte solns. containing carbonates and additives for secondary lithium batteries)				
IT	Secondary batteries				
	(lithium; electrolyte solns. containing carbonates and additives for secondary lithium batteries)				
IT	55-98-1, Busulfan 66-27-3, Methyl methane sulfonate 67-68-5, Dimethyl sulfoxide, uses 67-71-0, Dimethyl sulfone 75-18-3, Dimethyl sulfide 85-44-9, Phthalic anhydride 92-06-8, 1,3-Diphenyl benzene 92-52-4, Biphenyl, uses 98-06-6, (1,1-Dimethyl ethyl) benzene 108-30-5, Succinic anhydride, uses 108-31-6, Maleic anhydride, uses 127-63-9, Diphenyl sulfone 139-66-2, Diphenyl sulfide 462-06-6, Fluorobenzene 544-40-1, Dibutyl sulfide 629-45-8, Dibutyl disulfide 699-30-9 756-79-6, Dimethyl methyl phosphonate				

791-28-6, Triphenyl phosphine oxide 814-29-9, Tributyl phosphine oxide
 827-52-1, Cyclohexyl benzene 882-33-7,
 Diphenyl disulfide 945-51-7, Diphenyl sulfoxide
 1667-08-9 1717-82-4, 1-Cyclohexyl 2-fluorobenzene 1717-84-6,
 1-Cyclohexyl 4-fluorobenzene 1973-15-5 2170-03-8, Itaconic anhydride
 2240-41-7, Dimethyl phenyl phosphonate 3561-67-9, Bis(
 phenyl thio) methane 4480-83-5, Diglycolic anhydride
 4775-09-1, Ethyl diethyl phosphinate 16156-59-5, Phenyl methane
 sulfonate 25236-64-0, 2,2,2-Trifluoroethyl methane sulfonate
 33454-82-9, Lithium trifluoromethane sulfonate
 90076-65-6 117186-54-6 132404-42-3
 132843-44-8 390750-44-4 409071-16-5 412030-34-3
 521065-36-1

RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte solns. containing carbonates and additives for
 secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 872-36-6, Vinylene carbonate 4427-96-7,
 Vinyl ethylene carbonate 12190-79-3, Cobalt lithium oxide (CoLiO2)
 21324-40-3, Lithium hexafluorophosphate 114435-02-8,
 Fluoroethylene carbonate 918298-87-0, Carbon 12, copper 8.1, silicon 73

RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing carbonates and additives for
 secondary lithium batteries)

IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexyl benzene 33454-82-9, Lithium
 trifluoromethane sulfonate 90076-65-6 132404-42-3
 132843-44-8

RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte solns. containing carbonates and additives for
 secondary lithium batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



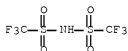
RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



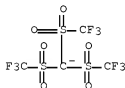
RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



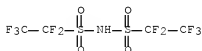
RN 132404-42-3 HCAPLUS

CN Methane, tris[(trifluoromethyl)sulfonyl]-, ion(1-), lithium (1:1) (CA INDEX NAME)



RN 132843-44-8 HCAPLUS

CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(1,1,2,2,2-pentafluoroethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 872-36-6, Vinylene carbonate 4427-96-7, Vinyl ethylene carbonate 21324-40-3, Lithium hexafluorophosphate

RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing carbonates and additives for
 secondary lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



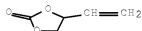
RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 4427-96-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2007:795944 HCAPLUS Full-text
 DN 147:260206
 TI Method for preparation of electrolyte for lithium ion battery
 IN Qu, Bing; Du, Xianzhong
 PA Byd Company Limited, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 20pp.
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	CN 101000970	A	20070718	CN 2006-10000780	20060111 <--
	CN 100505409	C	20090624		
FRAT	CN 2006-10000780		20060111 <--		
AB	The title electrolyte comprises lithium salts, organic solvent, and 3-7 wt% of additives. The additives contain one or more of biphenyl or its halide, 1,2-dimethoxybenzene, furan, and thiophene, and cyclohexylbenzene and/or its halide at a weight ratio of 1:(1-5). The electrolyte can be used for preparing lithium ion battery with improved overcharging safety, cycle performance, and high-temperature storage stability.				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 72				
ST	safety electrolyte lithium ion battery contg prepn				
IT	Secondary batteries (lithium; method for preparation of electrolyte for lithium ion battery)				
IT	Electrolytes (method for preparation of electrolyte for lithium ion battery)				
IT	87-82-1, Hexabromobenzene 91-16-7 110-00-9, Furan 110-02-1, Thiophene 118-74-1, Hexachlorobenzene RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (method for preparation of electrolyte for lithium ion battery)				
IT	21324-40-3, Lithium hexafluorophosphate LiPF6 RL: TEM (Technical or engineered material use); USES (Uses) (method for preparation of electrolyte for lithium ion battery)				
IT	21324-40-3, Lithium hexafluorophosphate LiPF6 RL: TEM (Technical or engineered material use); USES (Uses) (method for preparation of electrolyte for lithium ion battery)				
RN	21324-40-3 HCAPLUS				
CN	Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)				



● Li+

L105 ANSWER 7 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:793705 HCAPLUS Full-text

DN 147:193049

TI Additives for nonaqueous electrolyte and lithium secondary battery
using the same

IN Lee, Ho Chun; Shin, Sun Sik; Park, Hong Kyu; Jeon, Joo Mi; Cho, Jeong Ju

PA Ig Chem, Ltd., S. Korea

SO U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	US 20070166609	A1	20070719	US 2007-623045	20070117 <--
	KR 2007076522	A	20070724	KR 2007-5085	20070117 <--
	KR 789107	B1	20071226		
	WO 2007083917	A1	20070726	WO 2007-KR276	20070117 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	EP 1979979	A1	20081015	EP 2007-708501	20070117 <--
	R: DE, FR, GB, SE				
	CN 101375459	A	20090225	CN 2007-80003300	20080717 <--
FRAT	KR 2006-5058	A	20060117	<--	
	WO 2007-KR276	W	20070117		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Disclosed is an electrolyte for batteries, comprising: (a) an electrolyte salt; (b) an organic solvent; (c) a first compound having an oxidation initiation voltage (vs.Li/Li+) higher than the operating voltage of a cathode; and (d) a second reversible compound having an oxidation initiation voltage higher than the operating voltage of the cathode, but lower than the oxidation initiation voltage of the first compound. Also disclosed is a lithium secondary battery comprising the electrolyte. In the lithium secondary battery, two compds. having different safety improvement actions at a voltage higher than the operating voltage of the cathode are used in combination as electrolyte components. Thus, the safety of the secondary battery in an overcharged state can be ensured, and at the same time, the deterioration of the battery can be prevented from occurring when it is repeatedly cycled, continuously charged and stored at high temperature for a long time.

INCL 429105000; 429324000; 429200000; 429326000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrolyte additive lithium secondary battery; safety electrolyte additive lithium secondary battery

IT Battery electrolytes

Safety

(additives for nonaq. electrolyte of lithium secondary battery)

IT Secondary batteries

(lithium; additives for nonaq. electrolyte of lithium secondary battery)

- IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene
 100-66-3D, Anisole, derivs. 104-51-8, Butylbenzene 108-88-3, Toluene,
 uses 827-52-1, Cyclohexylbenzene 1743-87-9
 2049-95-8, tert-Amylbenzene 25496-07-5, Fluorobiphenyl 25496-08-6,
 Fluorotoluene 31424-56-3, Di(tert-Butylbenzene) 96141-26-3,
 DiBromodimethoxybenzene 522639-16-3 847567-67-3 944257-03-8
 944257-05-0 944257-07-2
 RL: MOA (Modifier or additive use); USES (Uses)
 (additives for nonaq. electrolyte of lithium secondary battery)
- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl
 carbonate 21324-40-3, Lithium hexafluorophosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (additives for nonaq. electrolyte of lithium secondary battery)
- IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (additives for nonaq. electrolyte of lithium secondary battery)
- RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



- RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl
 carbonate 21324-40-3, Lithium hexafluorophosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (additives for nonaq. electrolyte of lithium secondary battery)
- RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



L105 ANSWER 8 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:729336 HCAPLUS Full-text

DN 147:147127

TI Batteries

IN Umehara, Masakazu; Machida, Masaki

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 18pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2007172969	A	20070705	JP 2005-367877	20051221 <--
EPPI	JP 2005-367877		20051221	<--	

AB The battery has a cathode, an anode, and an electrolyte solution contains a solvent mixture and a vinylidene fluoride-containing polymer; where the solvent mixture contains ethylene carbonate, propylene carbonate, and an aromatic compound; and in the solvent mixture the content of a low-dielectric solvent having dielectric constant ≤ 10 is ≤ 3 volume%.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery electrolyte arom compd low dielec solvent

IT Battery electrolytes

Secondary batteries

(components of electrolyte solns. for secondary lithium batteries)

IT 84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses

101-84-8, Diphenyl ether 103-09-0, Diphenyl

carbonate 827-52-1, Cyclohexyl benzene

RL: MOA (Modifier or additive use); USES (Uses)

(components of electrolyte solns. for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 103-32-7, Propylene carbonate 7782-42-5, Graphite, uses 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 21324-40-3, Lithium hexafluorophosphate 52627-24-4, Cobalt

lithium oxide

RL: TEM (Technical or engineered material use); USES (Uses)
(components of electrolyte solns. for secondary lithium
batteries)

IT 92-52-4, Biphenyl, uses 102-09-0,
Diphenyl carbonate 827-52-1, Cyclohexyl
benzene

RL: MOA (Modifier or additive use); USES (Uses)
(components of electrolyte solns. for secondary lithium
batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 102-09-0 HCAPLUS

CN Carbonic acid, diphenyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
carbonate 108-32-7, Propylene carbonate 21324-40-3
, Lithium hexafluorophosphate

RL: TEM (Technical or engineered material use); USES (Uses)
(components of electrolyte solns. for secondary lithium
batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



L105 ANSWER 9 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:567063 HCAPLUS Full-text

DN 147:12867

TI Electrolytes for lithium ion batteries and their fabrication methods

IN Xiao, Feng; Zhou, Guishu; You, Huaying; Wang, Mingxia

PA Byd Company Limited, Peop. Rep. China

SO U.S. Pat. Appl. Publ., 16pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20070117012	A1	20070524	US 2006-604079	20061124 <--
	CN 1971999	A	20070530	CN 2005-10123943	20051124 <--
	CN 100517855	C	20090722		
	WO 2007059707	A1	20070531	WO 2006-CN3152	20061123 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,				

KG, KZ, MD, RU, TJ, TM
 KR 2008073349 A 20080808 KR 2008-715292 20080623 <--
 US 20080286646 A1 20081120 US 2008-93397 20080702 <--
 EP/ AI CN 2005-10123943 A 20051124 <--
 WO 2006-CN3152 W 20061123 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention discloses electrolytes for lithium ion batteries. The electrolytes comprise of lithium salts, organic solvents and additives. In particular, the additives are comprised of halogeno-benzene and/or its homologs, the O=S=O bond compds., biphenyl and/or its homologs, phenylcyclohexane and/or its homologs, teraalkylbenzenes, and di-cycladipate and/or its homologs. Lithium ion batteries using the electrolytes exhibit improved overcharging safety properties, high temperature storage stability properties and cycle life properties simultaneously.

INCL 429200000; 429326000; 429340000; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium ion battery electrolyte; safety lithium ion battery electrolyte

IT Battery electrolytes
 (electrolytes for lithium ion batteries and their fabrication methods)

IT Secondary batteries
 (lithium; electrolytes for lithium ion batteries and their fabrication methods)

IT 67-68-5, DMSO, uses 71-43-2D, Benzene, tetraalkyl derivative 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene 108-30-5, Succinic anhydride, uses 108-86-1, Bromobenzene, uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene 616-42-2, Dimethyl sulfite 623-81-4, Diethyl sulfite 627-93-0, Dimethyl adipate 627-52-1, Phenylcyclohexane 1120-71-4, 1,3-Propanesultone 1469-73-4, Propylene sulfite 1973-15-5, 3-Cyclohexyl biphenyl 1985-57-5, tert-Hexylbenzene 2035-75-8, Hexane dioic anhydride 2049-95-8, tert-Amylbenzene 3741-38-6, Ethylene sulfite 4016-06-2, 1,3-DiCyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolytes for lithium ion batteries and their fabrication methods)

IT 92-52-4, Biphenyl, uses 627-52-1, Phenylcyclohexane
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolytes for lithium ion batteries and their fabrication methods)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 627-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 10 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN

AN 2007:550263 HCAPLUS Full-text

DN 147:34382

TI Nonaqueous electrolyte solution containing mixed additive for secondary lithium battery

IN Xiao, Feng; Wang, Mingxia; Zhou, Guishu; You, Huaying

PA Byd Company Limited, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 17pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	CN 1964124	A	20070516	CN 2005-10101337	20051110 <--
	CN 100449854	C	20090107		
FRAL	CN 2005-10101337		20051110	<--	

AB The title electrolyte solution contains an electrolyte salt, an organic solvent, and an additive composed of 0.2-8.2% biphenyl, 1.0-9.0% cyclohexyl benzene, and 0.1-5.1 lithium salt selected from lithium carbonate, lithium sulfite, and lithium sulfate. The inventive electrolyte can improve comprehensive performance of secondary lithium battery, such as overcharge performance, high-temperature performance, and low-temperature discharge performance, etc.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary battery electrolyte additive biphenyl cyclohexyl benzene lithium salt

IT Battery electrolytes
(electrolyte solns. containing mixed additives for secondary lithium batteries)

IT Secondary batteries
(lithium; electrolyte solns. containing mixed additives for secondary lithium batteries)

IT 92-52-4, Biphenyl, uses 554-13-2, Lithium carbonate 827-52-1, Cyclohexyl benzene 10377-48-7, Lithium sulfate

RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing mixed additives for secondary lithium batteries)

IT 92-52-4, Biphenyl, uses 554-13-2, Lithium carbonate 827-52-1, Cyclohexyl benzene

RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing mixed additives for secondary lithium batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 554-13-2 HCAPLUS

CN Carbonic acid, lithium salt (1:2) (CA INDEX NAME)



●2 Li

RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 11 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2007:463514 HCAPLUS [Full-text](#)
 DN 146:465266
 TI Additive mixture of electrolyte solution for secondary lithium battery
 and electrolyte solution using the additive mixture
 IN Xiao, Feng; Wang, Mingxia; Zhou, Guishu; You, Huaying
 PA Byd Company Ltd., Peop. Rep. China
 SO PCT Int. Appl., 23pp.
 CODEN: PIXXD2
 DT Patent
 LA Chinese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007045162	A1	20070426	WO 2006-CN2727	20061017 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	CN 1953267	A	20070425	CN 2005-10100488	20051018 <--
	CN 100449852	C	20090107		
	CA 2625991	A1	20070426	CA 2006-2625991	20061017 <--
	EP 1939970	A1	20080702	EP 2006-804946	20061017 <--
	EP 1939970	B1	20090819		
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR				
	JP 2009512168	T	20090319	JP 2008-535872	20061017 <--
	AT 440393	T	20090915	AT 2006-804946	20061017 <--
	US 20070195021	A1	20070510	US 2006-583486	20061018 <--
	KR 2008059309	A	20080626	KR 2008-711940	20080519 <--
	US 20090042103	A1	20090212	US 2008-50728	20080729 <--

PRRI CN 2005-10100488 A 20051018 <--
 WO 2006-CN2727 W 20061017 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The additive mixture contains 0.5-95.4 weight% biphenyl based compound, 0.1-93.8 weight% cyclohexyl benzene based compound, 0.4-93.2 w.t% vinylene carbonate, 0.5-96.5 weight% t-alkyl benzene based compound, and 0.5-95.8 weight% ethenyl sulfonyl benzene, based on total weight of the additive mixture. The electrolyte solution contains a Li salt of 65-85 weight%, an organic solvent of 5-15 weight%, and the above additive mixture 1-30 weight%.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery electrolyte additive biphenyl based compd; electrolyte additive ethenyl sulfonyl benzene cyclohexyl benzene based compd; battery electrolyte additive vinylene additive

IT Battery electrolytes
 (comps. of additives in electrolyte solns. for secondary lithium batteries)

IT 92-52-4, Biphenyl, uses 96-49-1, Ethylene carbonate 98-06-6 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 1007-26-7 4016-06-2, 1,3-Dicyclohexyl benzene 5535-48-8, Ethenyl sulfonyl benzene 21324-40-3, Lithium hexafluorophosphate 26140-60-3, Terphenyl 28804-58-2
 RL: MOA (Modifier or additive use); USES (Uses)
 (comps. of additives in electrolyte solns. for secondary lithium batteries)

IT 92-52-4, Biphenyl, uses 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 21324-40-3, Lithium hexafluorophosphate
 RL: MOA (Modifier or additive use); USES (Uses)
 (comps. of additives in electrolyte solns. for secondary lithium batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 12 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2007:380768 HCAPLUS [Full-text](#)
 DN 146:362161
 T1 Energy storage devices with active carbon cathodes, lithium
 ion-intercalating anodes, and nonaqueous electrolytes
 IN Tsubouchi, Shigeki; Kumashiro, Yoshiaki; Arai, Toshikazu
 PA Hitachi Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 14pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2007087714	A	20070405	JP 2005-273843	20050921 <--
FR	JP 2005-273843		20050921	<--	
OS	MARPAT 146:362161				
GI					

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The nonaq. electrolytes in the title devices contain organic compds. having π bonds. Preferable compds. are R1R2C:R3R4, R1C6R2R3R4R5R6, MeOC6R1R2R3R4R5, R1C6R2R3R4R5(CH2)nC6R6R7R8R9R10, R1C6R2R3R4R5OC6R6R7R8R9R10, R1C6R2R3R4R5C6R6R7R8R9C6R10R11R12R13R14, I, II, and III (≥ 1 of R1-R10 = (substituted) alkyl or alkoxy (optionally containing double bonds or rings), Ph, PhO, carbonyl, halogen; n = 0-6). The devices are reliable and have high capacity.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq lithium secondary battery electrolyte additive; furan contg nonaq electrolyte energy storage

IT Carbonaceous materials (technological products)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anode; nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Coke
 Petroleum coke
 Phenolic resins, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (carbonaceous anode from; nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Carbon fibers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (graphite, anode; nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Secondary batteries
 (lithium; nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Thiols, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolytes containing; nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Battery electrolytes
 Pi bond
 (nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Phenolic resins, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (novolak, carbonaceous anode from; nonaq. secondary lithium batteries with electrolytes containing organic compds. with π bonds.)

IT Coke

- RL: TEM (Technical or engineered material use); USES (Uses)
(pitch, carbonaceous anode from; nonaq. secondary lithium
batteries with electrolytes containing organic compds. with
 π bonds.)
- IT 7782-42-5, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(anode; nonaq. secondary lithium batteries with
electrolytes containing organic compds. with π bonds.)
- IT 25212-86-6, Furfuryl alcohol resin
RL: TEM (Technical or engineered material use); USES (Uses)
(carbonaceous anode from; nonaq. secondary lithium batteries
with electrolytes containing organic compds. with π bonds.)
- IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(cathode; nonaq. secondary lithium batteries with
electrolytes containing organic compds. with π bonds.)
- IT 2923-17-3 7791-03-9, Lithium perchlorate
(LiClO₄) 14283-07-9, Lithium tetrafluoroborate
18424-17-4, Lithium hexafluoroantimonate
21324-49-3, Lithium hexafluorophosphate
29935-35-1, Lithium hexafluoroarsenate
33454-82-9, Lithium trifluoromethanesulfonate
99076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
132404-42-3, Lithium
tris(trifluoromethylsulfonyl)methanide 132843-44-8
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte salt; nonaq. secondary lithium
batteries with electrolytes containing organic compds. with
 π bonds.)
- IT 79-20-9, Methyl acetate 96-48-0, γ -Butyrolactone
96-49-1, Ethylene carbonate 105-58-8, Diethyl
carbonate 109-32-7, Propylene carbonate 109-99-9,
Tetrahydrofuran, uses 123-91-1, 1,4-Dioxane, uses 141-78-6, Ethyl
acetate, uses 505-22-6, 1,3-Dioxane 616-38-6, Dimethyl
carbonate 623-53-0, Ethyl methyl carbonate 646-06-0,
1,3-Dioxolane 4437-85-8, Butylene carbonate 5703-46-8,
1,2-Dioxane
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; nonaq. secondary lithium batteries
with electrolytes containing organic compds. with π bonds.)
- IT 84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses
96-54-8, N-Methylpyrrole 104-93-8, 4-Methylanisole 110-00-9, Furan
827-52-1, Cycloheptylbencene 17249-80-8,
3-Chlorothiophene
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolytes containing; nonaq. secondary lithium
batteries with electrolytes containing organic compds. with
 π bonds.)
- IT 2923-17-3 7791-03-9, Lithium perchlorate
(LiClO₄) 14283-07-9, Lithium tetrafluoroborate
18424-17-4, Lithium hexafluoroantimonate
21324-49-3, Lithium hexafluorophosphate
29935-35-1, Lithium hexafluoroarsenate
33454-82-9, Lithium trifluoromethanesulfonate
99076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
132404-42-3, Lithium
tris(trifluoromethylsulfonyl)methanide 132843-44-8
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte salt; nonaq. secondary lithium

batteries with electrolytes containing organic compds. with
 π bonds.)

RN 2923-17-3 HCAPLUS

CN Acetic acid, 2,2,2-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li +

RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



● Li +

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



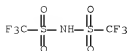
RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)

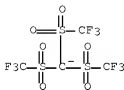


RN 90076-65-6 HCAPLUS

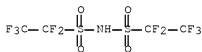
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



RN 132404-42-3 HCAPLUS
 CN Methane, tris[(trifluoromethyl)sulfonyl]-, ion(1-), lithium (1:1) (CA INDEX NAME)



RN 132843-44-8 HCAPLUS
 CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(1,1,2,2,2-pentafluoroethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-52-0, Ethyl methyl carbonate 4437-85-8, Butylene carbonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte; nonaq. secondary lithium batteries
 with electrolytes containing organic compds. with π bonds.)

RN 96-48-0 HCAPLUS
 CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 4437-85-8 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-ethyl- (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolytes containing; nonaq. secondary lithium
 batteries with electrolytes containing organic compds. with
 π bonds.)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 13 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:63303 HCAPLUS Full-text

DN 146:166435

TI Lithium secondary battery containing capsule for controlled-release of additives

IN Lee, Hochun; Kim, Hyeonjin

PA LG Chem, Ltd., S. Korea

SO PCT Int. Appl., 22pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007008006	A1	20070118	WO 2006-KR2684	20060710 <--
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	KR 2007008405	A	20070117	KR 2006-64279	20060710 <--
	KR 777126	B1	20071129		
	EP 1905118	A1	20080402	EP 2006-769221	20060710 <--
	R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU			
	JP 2009501419	T	20090115	JP 2008-521312	20060710 <--
	US 2007015046	A1	20070118	US 2006-484931	20060712 <--
	US 7552095	B2	20090922		
	CN 101213703	A	20080702	CN 2006-80023938	20071229 <--
	FRAI KR 2005-63018	A	20050713	<--	
	WO 2006-KR2684	W	20060710	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Provided is a lithium secondary battery comprising a controlled-release capsule which continuously releases a desired amount of additives necessary

for electrolytes or electrodes at a constant level and is included in an electrolyte and/or an electrode material, thereby providing inherent effects of additives while simultaneously minimizing adverse side reactions of surplus additives, consequently optimizing the battery performance.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery capsule controlled additive release

IT Battery electrodes
Battery electrolytes
Capsules
(lithium secondary battery containing capsule for controlled-release of additives)

IT Gelatins, uses
Polyamide fibers, uses
Polyesters, uses
Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(lithium secondary battery containing capsule for controlled-release of additives)

IT Secondary batteries
(lithium; lithium secondary battery containing capsule for controlled-release of additives)

IT 60-00-4, Edta, formation (nonpreparative) 109-74-0, Butyronitrile 110-60-1, Tetramethylene diamine 110-61-2, Succinonitrile 110-86-1, Pyridine, formation (nonpreparative) 1663-45-2, Ethylene bis(diphenylphosphine) 7553-56-2, Iodine, formation (nonpreparative) 14798-03-9D, Ammonium, halogenate 37275-48-2, Dipyrindyl
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(lithium secondary battery containing capsule for controlled-release of additives)

IT 77-77-0, Vinyl sulfone 92-52-4, Biphenyl, uses 95-96-5, Lactide 105-60-2, Caprolactam, uses 107-46-0, Hexamethyldisiloxane 108-30-5, Succinic anhydride, uses 680-31-9, Hexamethylphosphoramide 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 957-13-1, Hexamethoxycyclotriphosphazene 1120-71-4, Propane sulfone 3741-38-6, Ethylene sulfite 21806-61-1 25036-30-0, Ethylene-Vinylene carbonate copolymer 49813-61-8, Dimethylpyrrole 114435-02-8, Fluoroethylene carbonate
RL: MOA (Modifier or additive use); USES (Uses)
(lithium secondary battery containing capsule for controlled-release of additives)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9003-53-6, Polystyrene 9004-34-6, Cellulose, uses 9012-76-4, Chitosan 12190-79-3, Cobalt lithium oxide (CoLiO2) 24980-41-4, Polycaprolactone 25038-59-9, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(lithium secondary battery containing capsule for controlled-release of additives)

IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexylbenzene
RL: MOA (Modifier or additive use); USES (Uses)
(lithium secondary battery containing capsule for controlled-release of additives)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 14 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2006:1230194 HCAPLUS Full-text

DN 145:508603

TI Secondary lithium batteries containing cyclohexylbenzene, biphenyl, fluorobenzene, and tert-alkylbenzenes in nonaqueous electrolytes

IN Sakata, Hideo; Kita, Fusaji; Yoneda, Keisuke

PA Hitachi Maxell Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 16pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
VI	JP 2006318839	A	20061124	JP 2005-142334	20050516 <--
FRAT	JP 2005-142334		20050516	<--	

AB In the disclosed batteries, electrolytes contain biphenyl, fluorobenzene, tert-alkylbenzenes, and ≤3 weight% cyclohexylbenzene. By the low concentration of cyclohexylbenzene, battery swelling when long-term charging is prevented. The batteries also have safety when overcharging.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte secondary lithium battery swelling prevention; cyclohexylbenzene biphenyl fluorobenzene alkylbenzene nonaq electrolyte battery; secondary lithium battery overcharging safety nonaq electrolyte

IT Secondary batteries

(lithium; secondary lithium batteries containing cyclohexylbenzene, biphenyl, fluorobenzene, and tert-alkylbenzenes in nonaq. electrolytes)

IT Battery electrolytes

Safety

(secondary lithium batteries containing cyclohexylbenzene, biphenyl, fluorobenzene, and tert-alkylbenzenes in nonaq. electrolytes)

IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl carbonate

RL: DEV (Device component use); USES (Uses)

(electrolyte solvents; secondary lithium batteries containing cyclohexylbenzene, biphenyl, fluorobenzene, and tert-alkylbenzenes in nonaq. electrolytes)

IT 21324-40-3, Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)

(electrolytes; secondary lithium batteries containing cyclohexylbenzene, biphenyl, fluorobenzene, and

- tert-alkylbenzenes in nonaq. electrolytes)
- IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene
462-06-6, Fluorobenzene 827-52-1, Cyclohexylbenzene
1012-72-2, 1,4-Di-tert-butylbenzene 2049-95-8, tert-Amylbenzene
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(secondary lithium batteries containing cyclohexylbenzene
, biphenyl, fluorobenzene, and tert-alkylbenzenes in nonaq.
electrolytes)
- IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl
carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvents; secondary lithium
batteries containing cyclohexylbenzene, biphenyl
, fluorobenzene, and tert-alkylbenzenes in nonaq. electrolytes)
- RN 96-49-1 HCAPLUS
- CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 623-53-0 HCAPLUS
- CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



- IT 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolytes; secondary lithium batteries containing
cyclohexylbenzene, biphenyl, fluorobenzene, and
tert-alkylbenzenes in nonaq. electrolytes)
- RN 21324-40-3 HCAPLUS
- CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



- IT 92-52-4, Biphenyl, uses 827-52-1,
Cyclohexylbenzene
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(secondary lithium batteries containing cyclohexylbenzene

, biphenyl, fluorobenzene, and tert-alkylbenzenes in nonaq. electrolytes)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 15 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN

AN 2006:1073997 HCAPLUS [Full-text](#)

DN 147:215488

TI Reaction mechanisms of aromatic compounds as an overcharge protection agent for 4V class lithium-ion cells

AU Shima, Kunihisa; Shizuka, Kenji; Ue, Makoto; Ota, Hitoshi; Hatozaki, Takuya; Yamaki, Jun-Ichi

CS Yokkaichi Plant, Mitsubishi Chemical Corporation, Yokkaichi, Mie, 510-8530, Japan

SO Journal of Power Sources (2006), 161(2), 1264-1274

CODEN: JPSODZ; ISSN: 0378-7753

PB Elsevier B.V.

DT Journal

LA English

AB Aromatic compds. such as biphenyl (BP), cyclohexylbenzene (CHB), and partially hydrogenated m-terphenyl (H-mTP) are used in com. lithium-ion cells as a nonredox shuttle type overcharge protection agent, where they are electrochem. polymerized to form passivating films on the pos. electrode under overcharge conditions. The reaction mechanisms of these aromatic compds. were studied. The oxidation products of these aromatic compds. on the pos. electrode were identified by electrochem. and surface anal. techniques including SEM, TPD-MS and MALDI-TOF-MS. They were the oligomers having 6-12 benzene rings, where the bond formation occurs mainly at ortho-positions of Ph group. Their formation was not dependent on the monomer structure (BP, CHB, or H-mTP) and temperature (25 or 60°). Probably the cyclohexane structure in CHB or H-mTP was converted to the benzene structure by dehydrogenation after the polymerization

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 73, 78, 80

ST polycyclic arom compd overcharge protection secondary lithium battery electrolyte; dehydrogenation condensation arom compd battery electrolyte additive electrooxidn identification

IT Battery electrolytes

(additives for overcharge protection; reaction mechanisms of aromatic compds. as overcharge protection agent for 4V class lithium-ion cells)

IT Ladder polymers

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
 (aromatic, example of reaction products of cyclohexylbenzene
 and/or biphenyl; reaction mechanisms of aromatic compds. as
 overcharge protection agent for 4V class lithium-ion cells)

IT Polymerization

(electrochem., of electrolyte additives; reaction mechanisms
 of aromatic compds. as overcharge protection agent for 4V class
 lithium-ion cells)

IT Secondary batteries

(lithium, electrolyte additives for; reaction mechanisms of
 aromatic compds. as overcharge protection agent for 4V class lithium-ion
 cells)

IT Linear-sweep voltammetry

Oxidation potential

(of hydrogenated m-terphenyl mixture in electrolytes; reaction
 mechanisms of aromatic compds. as overcharge protection agent for 4V class
 lithium-ion cells)

- IT 71-43-2, Benzene, formation (nonpreparative) 74-84-0, Ethane, formation
 (nonpreparative) 74-85-1, Ethene, formation (nonpreparative) 74-87-3,
 Chloromethane, formation (nonpreparative) 74-98-6, Propane, formation
 (nonpreparative) 75-00-3, Chloroethane 75-07-0, Acetaldehyde,
 formation (nonpreparative) 75-37-6, 1,1-Difluoroethane 78-93-3,
 2-Butanone, formation (nonpreparative) 79-20-9, Methyl acetate
 106-97-8, n-Butane, formation (nonpreparative) 107-31-3, Methyl formate
 109-66-0, n-Pentane, formation (nonpreparative) 109-94-4, Ethyl formate
 110-54-3, n-Hexane, formation (nonpreparative) 110-62-3, Pentanal
 111-65-9, n-Octane, formation (nonpreparative) 111-84-2, n-Nonane
 115-07-1, Propene, formation (nonpreparative) 115-10-6, Dimethyl ether
 115-11-7, Isobutene, formation (nonpreparative) 123-38-6, Propanal,
 formation (nonpreparative) 124-18-5, n-Decane 124-38-9, Carbon
 dioxide, formation (nonpreparative) 353-36-6, Fluoroethane 540-67-0,
 Methyl ethyl ether 591-87-7, Allylacetate 624-72-6, 1,2-Difluoroethane
 629-50-5, n-Tridecane 1120-21-4, n-Undecane 4170-30-3, 2-Butenal
 7446-09-5, Sulfur dioxide, formation (nonpreparative) 7570-02-7
 , DiVinyl carbonate

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(oxidation product from overcharging; reaction mechanisms of aromatic
 compds. as overcharge protection agent for 4V class lithium-ion cells)

IT 94-52-4, 1,1'-Biphenyl, uses

827-52-1, Cyclohexylbenzene

RL: MOA (Modifier or additive use); RCT (Reactant); TEM (Technical or
 engineered material use); RACT (Reactant or reagent); USES (Uses)

(reaction mechanisms of aromatic compds. as overcharge protection agent
 for 4V class lithium-ion cells)

- IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl
 carbonate 623-53-0, Ethylmethyl carbonate 7439-93-2,
 Lithium, uses 12190-79-3, Cobalt lithium oxide (CoLiO2)
 21324-40-3, Lithium hexafluorophosphate (LiPF6)

RL: TEM (Technical or engineered material use); USES (Uses)

(reaction mechanisms of aromatic compds. as overcharge protection agent
 for 4V class lithium-ion cells)

IT 7570-02-7, DiVinyl carbonate

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(oxidation product from overcharging; reaction mechanisms of aromatic
 compds. as overcharge protection agent for 4V class lithium-ion cells)

RN 7570-02-7 HCAPLUS

CN Carbonic acid, diethenyl ester (CA INDEX NAME)



IT 92-52-4, 1,1'-Biphenyl, uses
 827-52-1, Cyclohexylbenzene
 RL: MOA (Modifier or additive use); RCT (Reactant); TEM (Technical or
 engineered material use); RACT (Reactant or reagent); USES (Uses)
 (reaction mechanisms of aromatic compds. as overcharge protection agent
 for 4V class lithium-ion cells)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl
 carbonate 623-53-0, Ethylmethyl carbonate 21324-40-3
 , Lithium hexafluorophosphate (LiPF₆)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (reaction mechanisms of aromatic compds. as overcharge protection agent
 for 4V class lithium-ion cells)
 RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

OSC.G 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)
 RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 16 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2006:1065902 HCAPLUS Full-text

DN 145:400980

TI Electrolyte solutions for secondary batteries and secondary batteries

IN Ishikawa, Hitoshi; Utsuki, Koji; Kusachi, Yuki

PA Nec Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 39pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006278106	A	20061012	JP 2005-94513	20050329 <--
FFAI	JP 2005-94513		20050329 <--		

OS MARPAT 145:400980

AB The solution contains (A) electrolyte salt, (B) aprotic solvent, (C) compound which polymerizes, decomp. with emission of gases, or are redox reactive under a voltage equal or above the maximum battery driving voltage, e.g. (partially hydrogenated) biphenyl, cyclobenzylhexyl, di-Ph ether, and (D) R3SO2CR1R4SO2R2 (R1, R4 = H, (un)substituted C1-5 alkyl, alkoxy, or fluoroalkyl, C1-5 polyfluoroalkyl, SO2X1; SY1, COZ, halogen; R2, R3 (un)substituted C1-5 alkyl, alkoxy, or fluoroalkyl, (un)substituted phenoxy, C1-5 polyfluoroalkyl, C1-5 polyfluoroalkoxy, OH, halo, NX2X3, NY2CONY3Y4; X1, Y1 = (un)substituted C1-5 alkyl; X2, X3, Y2-4, Z = H (un)substituted C1-5 alkyl). The solution may also contain cyclic mono- or disulfonic acid esters (given in Markush). Secondary batteries using the electrolyte solns. are also claimed. The batteries may be packed in laminates. The batteries are safe even when over-charged.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery disulfonylmethane deriv electrolyte additive;
 overcharging safety secondary battery sulfonylmethane additive
 electrolyte; cyclin sulfone secondary battery electrolyte additive

IT Solvents

- (aprotic; electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Ethers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (cyclic, (fluorinated); electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Carbonates, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (cyclic, linear, fluorinated, solvent; electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Battery electrolytes
 Secondary batteries
 (electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Ethers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Fatty acids, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (esters, (fluorinated); electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Ethers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (fluoroalkyl; electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT Lactones
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (γ -, (fluorinated); electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT 7439-93-2, Lithium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses
 RL: DEV (Device component use); USES (Uses)
 (anode active material; electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT 12057-17-9, Lithium manganese oxide (LiMn_2O_4) 12190-79-3, Cobalt lithium oxide (CoLiO_2)
 RL: DEV (Device component use); USES (Uses)
 (cathode active material; electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)
- IT 7791-03-9, Lithium perchlorate 14024-11-1, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-48-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(electrolyte salt; electrolyte solns.

containing disulfonylmethanes for secondary batteries with overcharging safety)

- IT 92-52-4, Biphenyl, uses 98-82-8, Cumene 99-62-7, 1,3-Diisopropylbenzene 101-84-8, Diphenyl ether 104-66-5, 1,2-Diphenoxyethane 110-00-9, Furan 110-02-1, Thiophene 148-86-7, 4-Biphenyl acetate 271-89-6, 2,3-Benzofuran 700-88-9, Cyclopentylbenzene 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 2170-13-0, 4-Biphenyl benzoate 2997-54-8 3586-14-9, 3-Phenoxyltoluene 7051-16-3, 1,3-Dimethoxy-5-chlorobenzene 17175-08-5, 4-Biphenyl methyl carbonate 22063-27-0 22063-28-1 26140-60-3, Terphenyl 26140-60-3D, Terphenyl, partially hydrogenated 82830-49-7D, 1,4-Dimethoxy-2-fluorobenzene, partially hydrogenated 97762-38-4 99591-74-9 257964-42-9, 2-Biphenyl methyl carbonate 258268-48-3 855472-38-7 855472-43-4

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)

- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(solvent; electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)

- IT 7791-03-9, Lithium perchlorate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(electrolyte salt; electrolyte solns.

containing disulfonylmethanes for secondary batteries with overcharging safety)

- RN 7791-03-9 HCAPLUS

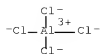
- CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

- RN 14024-11-4 HCAPLUS

- CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)



RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene 872-36-6, Vinylene carbonate
 17175-08-5, 4-Biphenyl methyl carbonate 257364-42-9,
 2-Biphenyl methyl carbonate
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (electrolyte solns. containing disulfonylmethanes for secondary
 batteries with overcharging safety)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



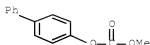
RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



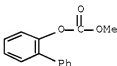
RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 17175-08-5 HCAPLUS
 CN Carbonic acid, [1,1'-biphenyl]-4-yl methyl ester (CA INDEX NAME)



RN 257864-42-9 HCAPLUS
 CN Carbonic acid, [1,1'-biphenyl]-2-yl methyl ester (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (solvent; electrolyte solns. containing
 disulfonylmethanes for secondary batteries with overcharging
 safety)
 RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L105 ANSWER 17 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2006:918270 HCAPLUS Full-text
 DN 145:274968
 TI Nonaqueous electrolyte secondary battery
 IN Iwanaga, Masato; Nishida, Nobumichi; Tsutsumi, Shuji
 PA Sanyo Electric Co., Ltd., Japan
 SO U.S. Pat. Appl. Publ., 9pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20060199077	A1	20060907	US 2006-359965	20060223 <--

JP 2006236725 A 20060907 JP 2005-48171 20050224 <--
 KR 2006094477 A 20060829 KR 2006-17530 20060223 <--
 CN 1825675 A 20060830 CN 2006-10009554 20060224 <--
 CN 100539291 C 20090909
 FRA1 JP 2005-48171 A 20050224 <--
 ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 AB The invention concerns a non-aqueous electrolyte secondary battery with excellent discharge cycle characteristics and a charging termination potential ranging from 4.4 to 4.6 V based on lithium, consisting of a pos. electrode comprising a pos. electrode active material, a neg. electrode, and a non-aqueous electrolyte containing a non-aqueous solvent and an electrolyte salt, in which the pos. electrode active material comprises a mixture of a lithium-cobalt composite oxide containing at least both zirconium and magnesium in LiCoO₂, and a lithium-manganese-nickel composite oxide having a layered structure and containing at least both manganese and nickel, and the potential of the pos. electrode active material ranges from 4.4 to 4.6 V based on lithium, and the non-aqueous electrolyte contains at least one of aromatic compds. selected from the group consisting at least of toluene derivs., anisole derivs., biphenyl, cyclohexyl benzene, tert-Bu benzene, tert-amyl benzene, and di-Ph ether.
 INCL 429231300; 429231600; 429224000; 429223000; 429326000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte secondary battery
 IT Battery cathodes
 Battery electrolytes
 Secondary batteries
 (nonaq. electrolyte secondary battery)
 IT Aromatic compounds
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 623-53-0, Ethyl methyl carbonate 162684-16-4, Lithium manganese nickel oxide 182442-95-1, Cobalt lithium manganese nickel oxide 532934-38-6, Cobalt lithium manganese nickel oxide (Co_{0.34}LiMn_{0.33}Ni_{0.33}O₂) 642999-33-5, Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene 100-66-3D, Anisole, derivative 101-84-8, Diphenyl ether 108-88-3D, Toluene, derivative 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 2049-95-8, tert-Amylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 623-53-0, Ethyl methyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene 872-36-6, Vinylene carbonate
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



L105 ANSWER 18 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2006:790600 HCAPLUS [Full-text](#)
 DN 145:214331
 TI Secondary nonaqueous electrolyte battery
 IN Murai, Tetsuya
 PA Sanyo Electric Co., Ltd., Japan; Sanyo Gs Soft Energy Co., Ltd.
 SO PCT Int. Appl., 73pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006082912	A1	20060810	WO 2006-JP301830	20060203 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	JP 2006216378	A	20060817	JP 2005-27977	20050203 <--
	KR 2007110502	A	20071119	KR 2007-719877	20070830 <--
	CN 101142705	A	20080312	CN 2006-80008723	20070918 <--
FRAL	JP 2005-27977	A	20050203	<--	
	WO 2006-JP301830	W	20060203	<--	
AB	The battery has a cathode containing a Li transition metal oxide: $\text{Li}_x\text{M}_y\text{O}_2$ or $\text{Li}_y\text{M}_x\text{O}_4$ [M = transition metal(s); x = 0-1; and y = 0-2], a Li-intercalating anode, and an electrolyte solution; where the electrolyte solution contains ≥ 1 compound of 0.1-2 % selected from compound lithium difluoroborooxalate and lithium borodioxalate 0.1-4 % aromatic compound				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	secondary battery electrolyte arom compd lithium boron oxide; battery cathode lithium transition metal oxide				
IT	Battery cathodes Battery electrolytes (cathodes containing lithium transition metal oxides and electrolytes containing aromatic compds. and lithium boron oxides for secondary lithium batteries)				
IT	Secondary batteries (lithium; cathodes containing lithium transition metal oxides and electrolytes containing aromatic compds. and lithium boron oxides for secondary lithium batteries)				
IT	96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 106-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7782-42-5, Graphite, uses 12031-65-1, Lithium nickel oxide (LiNiO_2) 12057-17-9, Lithium manganese oxide (LiMn_2O_4) 12190-79-3, Cobalt lithium oxide (CoLiO_2) 21324-40-3, Lithium hexafluorophosphate 217309-43-8, Cobalt lithium manganese nickel oxide ($\text{Co}_0.3\text{LiMn}_0.3\text{Ni}_0.4\text{O}_2$) 346417-97-8, Cobalt lithium manganese nickel oxide ($\text{Co}_0.33\text{LiMn}_0.33\text{Ni}_0.33\text{O}_2$) RL: DEV (Device component use); USES (Uses) (cathodes containing lithium transition metal oxides and electrolytes containing aromatic compds. and lithium boron oxides for secondary lithium batteries)				
IT	92-52-4, Biphenyl, uses 100-41-4, Ethyl benzene, uses 108-30-5, Succinic anhydride, uses 108-88-3, Toluene, uses 115-86-6, Triphenyl phosphate 321-60-8, 2-Fluorobiphenyl 330-84-7, 4-Fluorodiphenyl ether 452-10-8, 2,4-Difluoroanisole 827-52-1, Cyclohexyl benzene 972-36-6, Vinylene carbonate 2049-95-8, tert-Amyl benzene 4427-92-3, Phenyl ethylene carbonate 4427-96-7, Vinyl ethylene carbonate 14283-07-9, Lithium tetrafluoroborate 244761-29-3 409071-16-5 RL: MOA (Modifier or additive use); USES (Uses)				

(cathodes containing lithium transition metal oxides and electrolytes containing aromatic compds. and lithium boron oxides for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (cathodes containing lithium transition metal oxides and electrolytes containing aromatic compds. and lithium boron oxides for secondary lithium batteries)
 RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexyl benzene 872-36-6, Vinylene
 carbonate 4427-92-3, Phenyl ethylene carbonate
 4427-96-7, Vinyl ethylene carbonate 14283-07-9,
 Lithium tetrafluoroborate
 RL: MOA (Modifier or additive use); USES (Uses)
 (cathodes containing lithium transition metal oxides and
 electrolytes containing aromatic compds. and lithium boron oxides for
 secondary lithium batteries)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



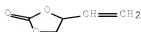
RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 4427-92-3 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-phenyl- (CA INDEX NAME)



RN 4427-96-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 19 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2006:717533 HCAPLUS Full-text

DN 145:170700

TI Method for preparing anode material of lithium-ion secondary battery

IN Song, Dianquan

PA Harbin Coslight Power Co., Ltd., Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 10 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1805180	A	20060719	CN 2005-10009620	20050114 <--
	CN 100423328	C	20081001		
FRAI	CN 2005-10009620		20050114	<--	
AB	The title method comprises: (1) mixing two or three materials selected from lithium cobalt oxide, lithium nickel oxide, and lithium manganese oxide, (2) torrefying in oxygen atmospheric at 700-1000°C for 8-16 h, and (3) cooling, grinding, and sieving to 5-25 μm. The obtained material has stable crystal structure, which can increase the capacity, cycle life, and overcharge safety of Li-ion secondary battery.				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	lithium cobalt nickel manganese oxide ion secondary battery anode				
IT	Secondary batteries (lithium; method for preparing anode material of lithium-ion secondary battery)				
IT	Carbon fibers, uses RL: TEM (Technical or engineered material use); USES (Uses) (method for preparing anode material of lithium-ion secondary battery)				

- IT Lactones
 RL: NUU (Other use, unclassified); USES (Uses)
 (sultones; method for preparing anode material of lithium-ion secondary battery)
- IT 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide
 52627-24-4, Lithium cobalt oxide
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (method for preparing anode material of lithium-ion secondary battery)
- IT 96-33-3, Methyl acrylate 96-48-0 96-49-1, Ethylene carbonate 102-09-0, Diphenyl carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4 140-88-5, Ethyl acrylate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 925-60-0, Propyl acrylate 7782-44-7, Oxygen, uses 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9 56525-42-9, Methyl propyl carbonate, uses 73506-93-1, Diethoxy ethane
 RL: NUU (Other use, unclassified); USES (Uses)
 (method for preparing anode material of lithium-ion secondary battery)
- IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12597-68-1, Stainless steel, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (method for preparing anode material of lithium-ion secondary battery)
- IT 96-48-0 96-49-1, Ethylene carbonate 102-09-0, Diphenyl carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9 56525-42-9, Methyl propyl carbonate, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (method for preparing anode material of lithium-ion secondary battery)
- RN 96-48-0 HCAPLUS
 CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



- RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 102-09-0 HCAPLUS
 CN Carbonic acid, diphenyl ester (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 56525-42-9 HCAPLUS
CN Carbonic acid, methyl propyl ester (CA INDEX NAME)



L105 ANSWER 20 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2006:689399 HCAPLUS Full-text

DN 145:127638

TI Nonaqueous electrolyte solution for lithium secondary batteries

IN Ahn, Sun Ho; Cho, Jeong Ju; Kim, Hyeon Jin; Lee, Han Ho; Lee, Ho Chan; Lee, Jae Heon; Son, Mi Yeong

PA Lg Chem. Ltd., S. Korea

SO Repub. Korean Kongkae Taeho Kongbo, No pp. given

CODEN: KRXXA7

DT Patent

LA Korean

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	KR 2004023870	A	20040320	KR 2002-55309	20020912 <--
PPAI	KR 2002-55309		20020912	<--	

AB In this Li battery with a nonaq. electrolyte solution overcharge current is blocked through polymerization of electrolyte components by degradation due to oxidation, thereby improving safety. The nonaq. electrolyte solution comprises a Li salt, an electrolyte solution compound, 0.5-5% of a nonconductive polymer monomer, and 0.1-2% of a conductive polymer monomer. Preferably the nonconductive polymer monomer is cyclohexylbenzene, isopropylbenzene or 5-butylbenzene; and the conductive polymer monomer is

biphenyl, 1-phenyl-1-cyclohexane or benzofuran. The Li secondary battery comprises a cathode, an anode, a porous separator, and the nonaq. electrolyte solution

IC ICM H01M0010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium secondary battery nonaq electrolyte safety
 IT Secondary batteries
 (lithium; nonaq. electrolyte solution for lithium secondary
 batteries with safety feature)
 IT Battery electrolytes
 Safety
 (nonaq. electrolyte solution for lithium secondary
 batteries with safety feature)
 IT 92-52-4, Biphenyl, uses 98-82-8, Isopropylbenzene
 135-98-8 271-89-6, Benzofuran 827-52-1
 RL: DEV (Device component use); USES (Uses)
 (electrolyte containing; nonaq. electrolyte solution for
 lithium secondary batteries with safety feature)
 IT 92-52-4, Biphenyl, uses 827-52-1
 RL: DEV (Device component use); USES (Uses)
 (electrolyte containing; nonaq. electrolyte solution for
 lithium secondary batteries with safety feature)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 21 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2006:656661 HCAPLUS Full-text

DN 145:127572

TI Electrolytes for lithium ion secondary batteries

IN Xiao, Feng; Wang, Mingxia

PA Byd Company Limited, Peop. Rep. China

SO PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006069544	A1	20060706	WO 2005-CN2389	20051230 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,				

GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, MN, BW, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

CN 1801518 A 20060712 CN 2004-10104032 20041231 <--
 CN 100438198 C 20081126
 US 20060147806 A1 20060706 US 2005-323970 20051229 <--
 EP 1836746 A1 20070926 EP 2005-824238 20051230 <--
 EP 1836746 B1 20090923

R: DE, FR, GB

JP 2008527615 T 20080724 JP 2007-548680 20051230 <--
 KR 2007086717 A 20070827 KR 2007-714671 20070627 <--
 KR 934065 B1 20091224

FR A1 CN 2004-10104032 A 20041231 <--
 WO 2005-CN2389 W 20051230 <--

AB The present invention relates to additives for electrolytes of lithium ion secondary batteries that include one or more of the following: 1,3-propane sultone, succinic anhydride; ethenyl sulfonyl benzene, and halobenzene. It can also include biphenyl, cyclohexylbenzene; and vinylene carbonate. The weight of the 1,3-propane sultone is between 0.5 weight% and 96.4 weight%, the d succinic anhydride is between 0.5 weight% and 96.4 weight%; the ethenyl sulfonyl benzene is between 0.5 weight% and 95.2wt.%; and the halobenzene is between 0.5 weight% and 95.2 weight% of the weight of the additive. Batteries with electrolytes containing the additives have improved over-charge characteristics and low temperature properties, and reduced gas generation during charging and discharging.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST electrolyte lithium ion secondary battery
 IT Battery electrolytes
 (electrolytes for lithium ion secondary batteries)

IT Secondary batteries
 (lithium; electrolytes for lithium ion secondary batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methylcarbonate 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (electrolytes for lithium ion secondary batteries)

IT 71-43-2D, Benzene, halo derivative 52-52-4, Biphenyl, uses 108-30-5, Succinic anhydride, uses 108-86-1, Bromobenzene, uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene 591-50-4, Iodobenzene 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 1120-71-4, 1,3-Propane sultone 5535-48-8, Ethenyl sulfonyl benzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolytes for lithium ion secondary batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methylcarbonate 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (electrolytes for lithium ion secondary batteries)

RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 927-52-1,
Cyclohexylbenzene 872-36-6, Vinylene carbonate
RL: MOA (Modifier or additive use); USES (Uses)
(electrolytes for lithium ion secondary batteries)
RN 92-52-4 HCAPLUS
CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 22 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN

AN 2006:655495 HCAPLUS Full-text

DN 145:86629

TI Secondary lithium batteries containing additives in contact with electrolytes

IN Oki, Yukihiro

PA Sanyo Electric Co., Ltd., Japan; Sanyo Gs Soft Energy Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006179234	A	20060706	JP 2004-369757	20041221 <--
JP 2004-369757		20041221	<--	

AB The title batteries contain (a) ≥ 1 of sodium acetate, lithium acetate, and sodium benzoate and (b) ≥ 1 of biphenyl, cyclohexylbenzene, 2-fluoroanisole, tert-amylbenzene, and tert-butylbenzene in the electrolytes and/or in parts contacting the electrolytes. Overcharging and temperature increase are prevented.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery electrolyte additive; biphenyl battery electrolyte additive; sodium acetate battery electrolyte additive

IT Secondary batteries

(lithium; secondary lithium batteries containing electrolyte additives for prevention of overcharging and heating)

IT Battery electrolytes

(secondary lithium batteries containing electrolyte additives for prevention of overcharging and heating)

IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butyl benzene
 127-09-3, Sodium acetate 321-28-8, 2-Fluoro anisole 532-32-1, Sodium
 benzoate 546-89-4, Lithium acetate 827-52-1,
 Cyclohexyl benzene 2049-95-8, tert-Amylbenzene
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (secondary lithium batteries containing electrolyte
 additives for prevention of overcharging and heating)

IT 92-52-4, Biphenyl, uses 546-89-4, Lithium
 acetate 827-52-1, Cyclohexyl benzene
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (secondary lithium batteries containing electrolyte
 additives for prevention of overcharging and heating)

RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 546-89-4 HCAPLUS
 CN Acetic acid, lithium salt (1:1) (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 23 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2006:399397 HCAPLUS Full-text
 DN 145:422424
 TI Co-Use of Cyclohexyl Benzene and Biphenyl for Overcharge Protection
 of Lithium-Ion Batteries
 AU Lee, Hoon; Lee, Jae Hwan; Ahn, Soonho; Kim, Hyeon-Jin; Cho, Jeong-Ju
 CS Batteries Research and Development, LG Chem, Limited, Daejeon, 305-380,
 S. Korea
 SO Electrochemical and Solid-State Letters (2006), 9(6), A307-A310
 CODEN: ESLEF6; ISSN: 1099-0062
 PB Electrochemical Society
 DT Journal

PUB DATE: 7 APRIL 2006

- LA English
- AB Cyclohexyl benzene (CHB) is used as an electrolyte additive for overcharge protection of Li-ion batteries. This study reports that a CHB and biphenyl (BP) mixture is more effective than CHB alone. On the overcharging tests for graphite-LiCoO₂ cells with a nominal capacity of 760 mA-h, CHB and BP mixts. increase the safety region up to 12 V/2 A, where CHB alone can never reach. Linear sweep voltammetry and electrochem. quartz crystal microbalance showed that the CHB and BP mixture has a bigger oxidation current and forms more polymeric film than the numeric sum of each component's effect. The origin of the synergistic effects between CHB and BP is discussed based on their different electrochem. characteristics.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST cyclohexylbenzene biphenyl electrolyte additive overcharge protection lithium battery safety
- IT Battery electrolytes
Safety
(cyclohexyl benzene and biphenyl mixture as electrolyte additive for overcharge protection of lithium-ion batteries)
- IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexyl Benzene
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(cyclohexyl benzene and biphenyl mixture as electrolyte additive for overcharge protection of lithium-ion batteries)
- IT 26008-29-6, Poly(biphenyl)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(cyclohexyl benzene and biphenyl mixture as electrolyte additive for overcharge protection of lithium-ion batteries)
- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; cyclohexyl benzene and biphenyl mixture as electrolyte additive for overcharge protection of lithium-ion batteries)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF₆)
RL: DEV (Device component use); USES (Uses)
(electrolyte; cyclohexyl benzene and biphenyl mixture as electrolyte additive for overcharge protection of lithium-ion batteries)
- IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexyl Benzene
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(cyclohexyl benzene and biphenyl mixture as electrolyte additive for overcharge protection of lithium-ion batteries)
- RN 92-52-4 HCAPLUS
- CN 1,1'-Biphenyl (CA INDEX NAME)



CN Benzene, cyclohexyl- (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate

RL: DEV (Device component use); USES (Uses)
(electrolyte containing; cyclohexyl benzene
and biphenyl mixture as electrolyte additive for
overcharge protection of lithium-ion batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 21324-40-3, Lithium hexafluorophosphate (LiPF₆)

RL: DEV (Device component use); USES (Uses)
(electrolyte; cyclohexyl benzene and
biphenyl mixture as electrolyte additive for overcharge
protection of lithium-ion batteries)

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



OSC.G 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS RECORD (13 CITINGS)
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2005:1265002 HCAPLUS Full-text
 DN 143:480482
 TI Overcharge-safeguarded secondary lithium batteries
 IN Nishino, Hajime; Kasamatsu, Shinji; Nagura, Kensuke; Kashihara, Yoshihiro
 PA Matsushita Electric Industrial Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2005332650	A	20051202	JP 2004-148687	20040519 <--
FP	JP 2004-148687		20040519	<--	
AB	The batteries comprise cathodes whose active mass surfaces are partially covered with (in area of <1/4 to total active mass surfaces) porous films containing additives which undergo reaction upon application of potential of ≥ 4.2 V (vs. Li electrode). Alternatively, a part of current collectors of cathodes is not covered with active mass layers but the porous films. The additives may be monomers undergoing polymerization upon heat. Since the additives are fixed in films, undesired reaction between the additives and cathode active mass is inhibited so as to keep the original storage- and charge-discharge cycling performance.				
IC	ICM H01M0004-02 ICS H01M0004-62; H01M0010-40				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 38				
ST	overcharge safeguarded lithium battery cathode coating porous film; polymerizable additive lithium battery cathode overcharge prevention; safety lithium battery cathode overcharge prevention				
IT	Secondary batteries (lithium; secondary Li battery cathode partially coated with porous film containing additive undergoing reaction in overcharging)				
IT	Battery cathodes Safety (secondary Li battery cathode partially coated with porous film containing additive undergoing reaction in overcharging)				
IT	25718-67-6P, Diphenyl ether homopolymer 26008-28-6P, Biphenyl homopolymer 29062-03-1P, o-Terphenyl homopolymer 118168-60-8P, Cyclohexylbenzene homopolymer RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses) (formation in overcharging; secondary Li battery cathode partially coated with porous film containing additive undergoing reaction in overcharging)				
IT	84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses 101-84-8, Diphenyl ether 553-91-3, Lithium oxalate 627-52-1, Cyclohexylbenzene RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses) (overcharging inhibitor; secondary Li battery cathode partially coated with porous film containing additive undergoing reaction in overcharging)				
IT	92-52-4, Biphenyl, uses 553-91-3, Lithium oxalate 627-52-1, Cyclohexylbenzene RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses) (overcharging inhibitor; secondary Li battery cathode partially coated with porous film containing additive undergoing reaction in overcharging)				

RN 92-52-4 HCAPLUS
CN 1,1'-Biphenyl (CA INDEX NAME)



RN 553-91-3 HCAPLUS
CN Ethanedioic acid, lithium salt (1:2) (CA INDEX NAME)



●2 Li

RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 25 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2005:823988 HCAPLUS Full-text
DN 143:232676
TI Nonaqueous electrolyte for lithium secondary battery
IN Ahn, Soon-Ho; Lee, Jae-Hyun; Cho, Jeong-Ju; Lee, Ho-Chun; Son, Mi-Young; Kim, Hyeon-Jin; Lee, Han-Ro
PA LG Chem, Ltd., S. Korea
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005076403	A1	20050818	WO 2004-KR257	20040210 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1728291	A1	20061206	EP 2004-709768	20040210 <--

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IT, LI, LU, MC, NL, PT, RO, SE, SI, SK, TR

CN 1914761	A	20070214	CN 2004-80041548	20040210 <--
CN 100502132	C	20090617		
JP 2007522632	T	20070809	JP 2006-553038	20040210 <--
TW 250678	B	20060301	TW 2004-93106934	20040316 <--
US 20070141475	A1	20070621	US 2006-588481	20060801 <--
FR01 WO 2004-KR257	W	20040210	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention relates to a nonaq. electrolyte solution containing new additives and a lithium secondary battery including the same. More particularly, the invention relates to a nonaq. electrolyte solution containing a lithium salt, an electrolyte compound, a first additive compound with an oxidation initiation potential of more than 4.2 V, and a second additive compound with an oxidation initiation potential of more than 4.2 V, which is higher in oxidation initiation potential than the first additive, and deposits oxidative products or form a polymer film, in oxidation, as well as a lithium secondary battery including the same. The present invention can provide a lithium secondary battery excellent in both the battery performance and the battery safety in overcharge by the combined use of the first additive and the second battery as additives to the nonaq. electrolyte solution

IC ICM H01M09010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery nonaq electrolyte; safety lithium secondary battery nonaq electrolyte

IT Secondary batteries
(lithium; nonaq. electrolyte for lithium secondary battery)

IT Battery electrolytes
(nonaq. electrolyte for lithium secondary battery)

IT Aromatic compounds
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolyte for lithium secondary battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte for lithium secondary battery)

IT 71-43-2, Benzene, uses 92-52-4, Biphenyl, uses 96-09-3, Phenylloxirane 96-43-5, 2-Chlorothiophene 98-06-6, tert-Butylbenzene 98-82-8, Isopropylbenzene 99-62-7, 1,3-Diisopropylbenzene 100-18-5, 1,4-Diisopropylbenzene 100-41-4, Ethylbenzene, uses 100-42-5, Vinylbenzene, uses 100-47-0, Benzonitrile, uses 100-84-5, 3-Methylanisole 101-84-8, Diphenyl ether 103-63-9 104-85-8, 4-Methylbenzonitrile 104-93-8, 4-Methylanisole 106-42-3, 1,4-Dimethylbenzene, uses 108-48-5, 2,6-Dimethylpyridine 108-67-8, Mesitylene, uses 108-88-3, Toluene, uses 110-00-9, Furan 110-02-1, Thiophene 132-64-9, Dibenzofuran 139-66-2, Phenyl sulfide 140-39-6, p-Methylphenyl acetate 321-60-8, 2-Fluoro-1,1'-biphenyl 352-32-9, p-Fluorotoluene 352-70-5, m-Fluorotoluene 452-10-8, 2,4-Difluoroanisole 462-06-6, Fluorobenzene 609-40-5, 2-Nitrothiophene 616-44-4, 3-Methylthiophene 617-90-3, 2-Cyanofuran 827-52-1, Cyclohexylbenzene 873-49-4, Cyclopropylbenzene 1012-72-2, 1,4-Di-tert-butylbenzene 1016-09-7, Diphenylmethyl methyl ether 1585-07-5, 1-Bromo-4-ethylbenzene 2745-25-7, 2-Furanacetonitrile 20282-30-8 30078-65-0, 3-Cyanofuran
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolyte for lithium secondary battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl

carbonate 108-32-7, Propylene carbonate 21324-40-3
 , Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte for lithium secondary battery)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 927-52-1,
 Cyclohexylbenzene

RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte for lithium secondary battery)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 26 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2005:673536 HCAPLUS Full-text
 DN 143:176221
 TI Electrochemical device comprising aliphatic nitrile compound
 IN Kim, Young-Soo; Ahn, Soon-Ho
 PA LG Chem, Ltd., S. Korea
 SO PCT Int. Appl., 46 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	WO 2005069423	A1	20050728	WO 2005-KR145	20050114 <--
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	TW 302760	B	20081101	TW 2005-94100970	20050113 <--
	KR 2005075297	A	20050720	KR 2005-3581	20050114 <--
	US 20050208371	A1	20050922	US 2005-34747	20050114 <--
	BR 2005006167	A	20061024	BR 2005-6167	20050114 <--
	EP 1716617	A1	20061102	EP 2005-704507	20050114 <--
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS			
	CN 1879250	A	20061213	CN 2005-80001274	20050114 <--
	CN 100502134	C	20090617		
	JP 2007510270	T	20070419	JP 2006-537904	20050114 <--
	RU 2308792	C1	20071020	RU 2006-114347	20050114 <--
	IN 2006KN01365	A	20070504	IN 2006-KN1365	20060522 <--
PRAT	KR 2004-2959	A	20040115	<--	
	WO 2005-KR145	W	20050114	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OS MARPAT 143:176221

AB The present invention provides a cathode having a complex between the surface of a cathode active material and an aliphatic nitrile compound, as well as an electrochem. device comprising the cathode. Also, disclosed : (1) a cathode having a complex between the surface of cathode active material and an

aliphatic nitrile compound; (2) an anode having a passivation layer formed by a compound selected from the group consisting of vinylene carbonate, its derivative and an ether compound; and (3) an electrolyte solution containing a lithium salt and a solvent.

- IC ICM H01M0010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72
 ST cathode electrochem device aliph nitrile compd; battery cathode aliph nitrile compd
 IT Battery cathodes
 (electrochem. device comprising aliphatic nitrile compound)
 IT Secondary batteries
 (lithium; electrochem. device comprising aliphatic nitrile compound)
 IT 143-24-8, Tetraethylene glycol dimethyl ether 538-86-3, Benzyl methyl ether 872-36-6, Vinylene carbonate 872-36-6D, Vinylene carbonate, derivative
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (electrochem. device comprising aliphatic nitrile compound)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7439-93-2D, lithium, salt 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium hexafluorophosphate 56525-42-9, Methyl propyl carbonate, uses
 RL: DEV (Device component use); USES (Uses)
 (electrochem. device comprising aliphatic nitrile compound)
 IT 92-52-4, Biphenyl, uses 110-61-2, Succinonitrile 629-40-3, Octanedinitrile 646-20-8, Heptanedinitrile 827-52-1, Cycloheptylbenezene 1871-96-1, Sebaconitrile
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrochem. device comprising aliphatic nitrile compound)
 IT 872-36-6, Vinylene carbonate 872-36-6D, Vinylene carbonate, derivative
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (electrochem. device comprising aliphatic nitrile compound)
 RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



- RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate

623-53-0, Ethyl methyl carbonate 7439-93-2D,
 Lithium, salt 21324-40-3, Lithium
 hexafluorophosphate 56525-42-9, Methyl propyl carbonate, uses
 RL: DEV (Device component use); USES (Uses)
 (electrochem. device comprising aliphatic nitrile compound)

RN 96-48-0 HCAPLUS
 CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 56525-42-9 HCAPLUS
CN Carbonic acid, methyl propyl ester (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
Cyclohexylbenzene
RL: MOA (Modifier or additive use); USES (Uses)
(electrochem. device comprising aliphatic nitrile compound)
RN 92-52-4 HCAPLUS
CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 27 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:547832 HCAPLUS Full-text

DN 143:81118

TI Nonaqueous electrolyte lithium secondary battery

IN Nakashima, Satoshi; Usami, Yasushi; Sakai, Akihiko; Hayashi, Manabu

PA Mitsubishi Chemical Corporation, Japan; Mitsubishi Plastics, Inc.; Kato, Ryoichi

SO PCT Int. Appl., 93 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	WO 2005057690	A1	20050623	WO 2004-JP18985	20041214 <--
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	JP 2005174867	A	20050630	JP 2003-416761	20031215 <--
	JP 2005174868	A	20050630	JP 2003-416762	20031215 <--
	JP 2005228511	A	20050825	JP 2004-33618	20040210 <--
	JP 2005228512	A	20050825	JP 2004-33619	20040210 <--
	EP 1705736	A1	20060927	EP 2004-807342	20041214 <--
	R: DE				
	CN 1934728	A	20070321	CN 2004-80041089	20041214 <--
	CN 100541863	C	20090916		
	JP 2005259680	A	20050922	JP 2004-376962	20041227 <--
	US 20070043607	A1	20070301	US 2006-453006	20060615 <--
	KR 2007019965	A	20070216	KR 2006-714229	20060714 <--
PRAT	JP 2003-416761	A	20031215 <--		
	JP 2003-416762	A	20031215 <--		
	JP 2004-33617	A	20040210 <--		
	JP 2004-33618	A	20040210 <--		
	JP 2004-33619	A	20040210 <--		
	WO 2004-JP18985	W	20041214 <--		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention aims to improve cycle characteristics of a high-capacity secondary battery wherein an active material is filled in at a high d. by using a particulate active material having a small aspect ratio. Disclosed is a nonaq. electrolyte secondary battery comprising a pos. electrode and neg. electrode capable of adsorbing/desorbing lithium, a separator and a nonaq. electrolyte solution containing a nonaq. solvent and a lithium salt is characterized in that the separator has a porous film composed of a thermoplastic resin containing an inorg. filler, and in that the active material contained in the neg. electrode is a particulate active material having an aspect ratio of not less than 1.02 and not more than 3 and/or the active material contained in the pos. electrode is a particulate active material having an aspect ratio of not less than 1.02 and not more than 2.2.

IC ICM H01M0002-16

ICS H01M0004-02; H01M0004-48; H01M0004-58; H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium battery separator cathode active material aspect ratio
 IT Polyolefin rubber
 RL: TEM (Technical or engineered material use); USES (Uses)
 (butene-ethylene-propene, block; lithium battery separator
 compns. containing)
 IT Castor oil
 RL: TEM (Technical or engineered material use); USES (Uses)
 (hydrogenated, Hy-Castor Oil; lithium battery separator
 compns. containing)
 IT Battery electrodes
 (lithium battery; aspect ratio of active substances for)
 IT Secondary battery separators
 (lithium battery; inorg. fillers for)
 IT Battery electrolytes
 (nonaq.; additives for lithium battery)
 IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (additive for nonaq. electrolyte solns. for lithium
 batteries)
 IT 7782-42-5, Graphite, uses 12190-79-3, Lithium cobalt oxide (LiCoO₂)
 855472-25-2, Lithium manganese nickel oxide (Li_{1.05}Mn_{0.5}Ni_{0.5}O_{2.05})
 RL: TEM (Technical or engineered material use); USES (Uses)
 (aspect ratios of lithium battery electrode active
 substances)
 IT 7727-43-7, Barium sulfate
 RL: MOA (Modifier or additive use); USES (Uses)
 (filler for lithium battery separator compns.)
 IT 9002-88-4, HI-ZEX7000FP
 RL: TEM (Technical or engineered material use); USES (Uses)
 (lithium battery separator compns. containing)
 IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (additive for nonaq. electrolyte solns. for lithium
 batteries)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)
 RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 28 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:450193 HCAPLUS Full-text

DN 142:484830

TI Nonaqueous electrolyte solution, secondary lithium battery which uses the solution

IN Hinohara, Akio; Hayashi, Takeshi

PA Mitsui Chemicals Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2005135906	A	20050526	JP 2004-295718	20041008 <--
FRAN	JP 2003-351626	A	20031010	<--	
AB	The electrolyte solution contains ≥ 1 aromatic compd.. selected from alkyl substituted benzene, allyl substituted benzene, diaryl ether, and halo substituted anisole with content 0.5-10 weight%; and 0.1-5 weight% fluoroborate salt. The battery uses the above electrolyte solution				
IC	ICM H01M0010-40				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	secondary lithium battery electrolyte soln arom compd fluoroborate salt				
IT	Battery electrolytes (electrolyte solns. containing aromatic compds. fluoroborate salts with controlled amts. for secondary lithium batteries)				
IT	96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 14283-07-9, Lithium tetrafluoroborate 21324-48-3, Lithium hexafluorophosphate RL: DEV (Device component use); USES (Uses) (electrolyte solns. containing aromatic compds. fluoroborate salts with controlled amts. for secondary lithium batteries)				
IT	84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses 98-51-1, 4-tert-Butyltoluene 100-41-4, Ethyl benzene, uses 101-84-8, Diphenyl ether 108-88-3, Toluene, uses 321-28-8, 2-Fluoroanisole 321-60-8, 2-Fluorobiphenyl 324-74-3, 4-Fluorobiphenyl 330-84-7, 4-Fluorodiphenyl ether 452-10-8, 2,4-Difluoro anisole 459-60-9, 4-Fluoroanisole 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate RL: MOA (Modifier or additive use); USES (Uses) (electrolyte solns. containing aromatic compds. fluoroborate salts with controlled amts. for secondary lithium batteries)				
IT	96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 14283-07-9, Lithium tetrafluoroborate 21324-48-3, Lithium hexafluorophosphate RL: DEV (Device component use); USES (Uses) (electrolyte solns. containing aromatic compds. fluoroborate salts with controlled amts. for secondary lithium batteries)				
RN	96-49-1 HCAPLUS				
CN	1,3-Dioxolan-2-one (CA INDEX NAME)				



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

IT 92-52-4, Biphenyl, uses 927-52-1,
Cyclohexyl benzene 672-36-6, Vinylene
carbonate

RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing aromatic compds. fluoroborate
salts with controlled amts. for secondary lithium
batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)



OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L105 ANSWER 29 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:368537 HCAPLUS Full-text

DN 142:433071

TI Secondary nonaqueous electrolyte battery

IN Mori, Sumio; Murai, Tetsuya

PA Japan Storage Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
P1	JP 2005116424	A	20050428	JP 2003-351606	20031010 <--
FFAI	JP 2003-351606		20031010	<--	
AB	The battery has a Li-intercalating cathode, an anode, and a nonaq. electrolyte solution; where the electrolyte solution contains an aromatic compound and a phosphazene compound				
IC	ICM 801M0010-40				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	secondary lithium battery electrolyte arom compd phosphazene compd				
IT	Battery electrolytes (electrolyte solns. containing aromatic compds. and phosphazene compds. for secondary lithium batteries)				
IT	Secondary batteries (lithium; electrolyte solns. containing aromatic compds. and phosphazene compds. for secondary lithium batteries)				
IT	96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7782-42-5, Graphite, uses 21324-40-3, Lithium hexafluorophosphate 52627-24-4, Cobalt				

lithium oxide

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing aromatic compds. and phosphazene compds. for secondary lithium batteries)

IT 92-51-4, Biphenyl, uses 321-60-8, 2-Fluorobiphenyl
324-74-3, 4-Fluorobiphenyl 827-52-1, Cyclohexyl
benzene 28652-72-4, Methyl biphenyl 33027-66-6
33027-68-8

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte solns. containing aromatic compds. and phosphazene compds. for secondary lithium batteries)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene
carbonate 105-58-8, Diethyl carbonate 108-32-7,
Propylene carbonate 616-38-6, Dimethyl carbonate
623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium
hexafluorophosphate

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing aromatic compds. and phosphazene compds. for secondary lithium batteries)

RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexyl benzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte solns. containing aromatic compds. and phosphazene
 compds. for secondary lithium batteries)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L105 ANSWER 30 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:302646 HCAPLUS Full-text
 DN 142:358078
 TI Electrolyte solution and secondary lithium battery which uses the solution
 IN Nirasawa, Takao; Komaru, Atsuo
 PA Sony Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 36 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
P1	JP 2005093238	A	20050407	JP 2003-324948	20030917 <--
EPAL	JP 2003-324948		20030917 <--		
AB	The electrolyte solution has a solvent, containing an O-free organic compound The battery has a cathode, an anode, and the above electrolyte solution				
IC	ICM H01M0010-40 ICS H01G0009-038; H01M0004-02; H01M0004-38; H01M0004-58; H01M0006-16				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	secondary lithium battery electrolyte solvent oxygen free org compd				
IT	Battery electrolytes (electrolyte solns. containing oxygen-free organic compound in solvent mixts. for secondary lithium batteries)				
IT	Secondary batteries (lithium; electrolyte solns. containing oxygen-free organic compound in solvent mixts. for secondary lithium batteries)				
IT	62-53-3, Aniline, uses 71-43-2, Benzene, uses 84-15-1, o-Terphenyl 91-17-8, Decalin 92-06-8, m-Terphenyl 92-52-4, Diphenyl, uses 96-49-1, Ethylene carbonate 98-06-6, tert-Butyl benzene 101-81-5, Diphenyl methane 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-67-8, 1,3,5-Trimethyl benzene, uses 108-86-1, Bromobenzene, uses 108-90-7, Chlorobenzene, uses 110-82-7, Cyclohexane, uses 110-83-8, Cyclohexene, uses 112-40-3, Dodecane 119-64-2, Tetrahydronaphthalene 123-01-3, Dodecyl benzene 287-92-3, Cyclopentane 392-56-3, Hexafluorobenzene 433-19-2, 1,4-Bis(trifluoromethyl) benzene 462-06-6, Fluorobenzene 575-41-7, 1,3-Dimethyl naphthalene 616-38-6, Dimethyl carbonate 623-52-0, Methyl ethyl carbonate 778-22-3, 2,2-Diphenyl propane 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 2049-95-8, tert-Pentyl benzene 4427-96-7, Vinyl ethylene carbonate 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO2) 12668-36-9 21324-40-3, Lithium hexafluorophosphate 30714-78-4, Butyl ethyl carbonate 35363-40-7, Ethyl propyl carbonate, uses 37292-50-5 39286-52-7 90076-65-6 132843-44-8 RL: DEV (Device component use); USES (Uses) (electrolyte solns. containing oxygen-free organic compound in solvent mixts. for secondary lithium batteries)				
IT	92-52-4, Diphenyl, uses 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-9, Methyl ethyl carbonate 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 4427-96-7, Vinyl ethylene carbonate 4437-85-8, Butylene carbonate 21324-40-3, Lithium hexafluorophosphate 30714-78-4, Butyl ethyl carbonate 35363-40-7, Ethyl propyl carbonate, uses 37292-50-5 39286-52-7 132843-44-8				

RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing oxygen-free organic compound in
 solvent mixts. for secondary lithium batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



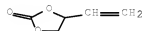
RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 4427-96-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 4437-85-8 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-ethyl- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 30714-78-4 HCAPLUS

CN Carbonic acid, butyl ethyl ester (CA INDEX NAME)



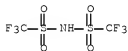
RN 35363-40-7 HCAPLUS

CN Carbonic acid, ethyl propyl ester (CA INDEX NAME)



RN 90076-65-6 HCAPLUS

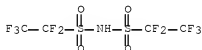
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 132843-44-8 HCAPLUS

CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(1,1,2,2,2-pentafluoroethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

L105 ANSWER 31 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:175643 HCAPLUS [Full-text](#)

DN 144:195111

TI Behavior of overcharging additives for electrolyte used in Li-ion batteries

AU Hu, Chuan-yue; Li, Xin-hai; Wang, Zhi-xin; Guo, Hua-jun

CS College of Metallurgy Science and Engineering, Central South University, Changsha, 410083, Peop. Rep. China

SO Zhongguo Youse Jinshu Xuebao (2004), 14(12), 2125-2130

CODEN: ZYJXFK; ISSN: 1004-0609

PB Kexue Chubanshe

DT Journal

LA Chinese

AB Three kinds of 1 mol/L LiPF₆ electrolytes were prepared in various mixed solvents. The components of the electrolytes were as follows: (1) ethylene carbonate (EC), di-Me carbonate (DMC), ethylmethyl carbonate (EMC); (2) EC,

- DMC, EMC +4% biphenyl (BP); and (3) EC, DMC, EMC+4% cyclohexylbenzene (CB). The behaviors of electrolytes were analyzed by linear sweep voltage, lithium cycling efficiency, cycling performance and overcharging with 3C of lithium-ion batteries. The results show that CB is a kind of practical overcharging additive for electrolyte. The CB exhibits better electrochem. stability than BP due to the oxidation potential 4.72 V vs. Li/Li+ for CB and 4.54 V vs. Li/Li+ for BP. The lithium cycling efficiency of Pt electrode is 15.7% for BP electrolyte and 59.3% for CB electrolyte after 20 cycles with 1 mA. The capacity holding ration of prismatic lithium-ion batteries is 88% for CB electrolyte and 76.3% for BP electrolyte after 150 cycles at 1C. The overcharging tolerance of the lithium-ion batteries with CB and BP electrolyte are improved, and both of efficiencies are similar.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72
- ST lithium battery electrolyte overcharging additive
- IT Battery electrolytes
 (behavior of overcharging additives for electrolyte used in Li-ion batteries)
- IT Secondary batteries
 (lithium; behavior of overcharging additives for electrolyte used in Li-ion batteries)
- IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (behavior of overcharging additives for electrolyte used in Li-ion batteries)
- IT 92-52-4, Biphenyl, uses 327-52-1, Cyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (behavior of overcharging additives for electrolyte used in Li-ion batteries)
- IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (behavior of overcharging additives for electrolyte used in Li-ion batteries)
- RN 96-49-1 HCAPLUS
- CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 616-38-6 HCAPLUS
- CN Carbonic acid, dimethyl ester (CA INDEX NAME)



- RN 623-53-0 HCAPLUS
- CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,

Cyclohexylbenzene

RL: MOA (Modifier or additive use); USES (Uses)

(behavior of overcharging additives for electrolyte used in
Li-ion batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 32 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN

AN 2004:352048 HCAPLUS [Full-text](#)

DN 140:378001

TI Secondary nonaqueous electrolyte battery

IN Matsui, Toru; Deguchi, Masaki; Sonoda, Kumiko; Nishimura, Makiko; Koshina, Shigeru

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004134261	A	20040430	JP 2002-298206	20021011 <--
	JP 4313017	B2	20090812		
EP	JP 2002-298206		20021011	<--	
AB	The battery comprises a cathode, an anode, and a nonaq. electrolyte solution, having a solute dissolved in a solvent mixture which contains a main solvent and a secondary solvent; where the secondary solvent comprises a compound A, selected from cyclohexyl benzene, biphenyl, and/or di-Ph ether, and a compound X whose oxidation potential is 0.1-0.4 V higher than that of the compound A; and the weight ratio of the secondary solvent to the solvent mixture and the compound X to the secondary solvent is 0.01-5 and 20-99 resp.				
IC	H01M09/10-40				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	secondary battery nonaq electrolyte solvent carbonate arom compd				
IT	Battery electrolytes (electrolyte solvents containing carbonates and aromatic compds. for secondary batteries)				
IT	92-52-4, Biphenyl, uses 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 98-82-8 100-41-4, Phenyl ethane, uses 101-81-5, Diphenyl methane 101-84-8, Diphenyl ether 105-58-8, Diethyl carbonate 108-88-3, Phenyl methane, uses 321-60-8, 2-Fluorobiphenyl 330-93-8, Bis(4-fluorophenyl) ether 362-59-4, 2-Trifluoromethyl biphenyl 396-64-5 519-73-3, Triphenyl methane 527-21-9, Tetrafluoro-p-benzoquinone 623-53-0, Ethyl methyl carbonate 791-28-6, Triphenylphosphine oxide 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 960-71-4, Triphenyl borane 2367-02-4, 4-Trifluoromethyl diphenyl ether 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 142990-38-3 142990-39-4 684215-50-7 684215-51-8 RL: DEV (Device component use); USES (Uses) (electrolyte solvents containing carbonates and aromatic compds. for secondary batteries)				
IT	92-52-4, Biphenyl, uses 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 623-53-0, Ethyl methyl carbonate 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate RL: DEV (Device component use); USES (Uses) (electrolyte solvents containing carbonates and aromatic compds. for secondary batteries)				
RN	92-52-4 HCAPLUS				
CN	1,1'-Biphenyl (CA INDEX NAME)				



RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L105 ANSWER 33 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2004:159908 HCAPLUS Full-text

DN 140:184751

TI Secondary lithium battery nonaqueous electrolytes and secondary lithium batteries with prevented overcharging

IN Shizuka, Kenji; Kinoshita, Shinichi; Noda, Daisuke

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004063114	A	20040226	JP 2002-216090	20020725 <--
	JP 4348908	B2	20091021		
PPAI	JP 2002-216090		20020725 <--		
OS	MARPAT 140:184751				

AB Li salt-containing nonaq. electrolytes also containing overcharging inhibitors and (di)sulfides are claimed. Preferable structure for the the overcharging inhibitor is C6R1R2R3R4R5R6 (R1-6 = H, halogen, (un)substituted hydrocarbon, alkoxy, aryloxy; R1 + R2 may form (un)substituted, phenyleneoxy, ethyleneoxy, trimethyleneoxy, propyleneoxy, vinyleneoxy). Preferable overcharging inhibitors and (di)sulfides are also given.

IC ICM R01H0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 25, 27ST nonaq electrolyte lithium secondary battery; overcharging inhibitor
lithium secondary battery electrolyte; disulfide additive lithium
secondary battery electrolyte

IT Disulfides

- RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(electrolytes containing; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT Battery electrolytes
(lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT Secondary batteries
(lithium; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(electrolyte salt; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 872-36-6, Vinylene carbonate
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(electrolyte solvent; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT 2127-03-9, 2,2'-Dipyridyl disulfide 2127-10-8, 2,2'-Dithiobis(5-nitropyridine) 2645-22-9, 4,4'-Dipyridyl disulfide 15658-35-2, 6,6'-Dithiodinicotinic acid
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(electrolytes containing; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT 93-52-4, Biphenyl, uses 95-72-7, 2-Chloro-p-xylene 101-81-5, Diphenylmethane 101-84-8, Diphenyl ether 103-29-7, 1,2-Diphenylethane 104-66-5, 1,2-Diphenoxyethane 104-92-7, 4-Bromoanisole 132-64-9, Dibenzofuran 321-60-8, 2-Fluorobiphenyl 324-74-3, 4-Fluorobiphenyl 362-56-1, 1,2,4,5-Tetrafluoro-3,6-dimethoxybenzene 392-69-8, 2-Fluoromesitylene 396-64-5, 3,3'-Difluorobiphenyl 398-23-2, 4,4'-Difluorobiphenyl 452-10-8, 2,4-Difluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole 583-70-0, 4-Bromo-m-xylene 612-75-9, 3,3'-Dimethylbiphenyl 613-33-2, 4,4'-Dimethylbiphenyl 615-60-1, 4-Chloro-o-xylene 623-12-1, 4-Chloroanisole 643-58-3, 2-Methylbiphenyl 643-93-6, 3-Methylbiphenyl 644-08-6, 4-Methylbiphenyl 766-51-8, 2-Chloroanisole 778-22-3, 2,2-Diphenylpropane 827-52-1, Cyclohexylbenzene 1625-92-9, 4-tert-Butylbiphenyl 1667-08-9, 1973-15-5, 3-Cyclohexylbiphenyl 2845-89-8, 3-Chloroanisole 3061-36-7, 1,4-Diphenoxybenzene 3150-40-1, 2,3,5,6-Tetrafluoro-4-methylanisole 3379-38-2, 1,3-Diphenoxybenzene 4016-06-2, 1,3-Dicyclohexylbenzene 6738-04-1, 2-Phenoxylbiphenyl 7051-16-3, 1,3-Dimethoxy-5-chlorobenzene 17715-69-4, 1,3-Dimethoxy-4-bromobenzene 20273-26-1 25245-34-5 26140-60-3, Terphenyl 52189-63-6, 1-Fluoro-3,5-dimethoxybenzene 82830-49-7, 1,4-Dimethoxy-2-fluorobenzene 93343-10-3, 3,5-Difluoroanisole 97762-38-4 258268-48-3
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(overcharging inhibitor; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(electrolyte salt; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 872-36-6, Vinylene carbonate

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(electrolyte solvent; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexylbenzene

RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(overcharging inhibitor; lithium secondary batteries with nonaq. electrolytes containing overcharging inhibitors and disulfides)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 34 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2004:139826 HCAPLUS Full-text

DN 140:184697

TI Secondary nonaqueous battery and electronic device using the battery

IN Kita, Fusaji; Higashiguchi, Masaharu; Sakata, Hideo

PA Hitachi Maxell Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004055253	A	20040219	JP 2002-209221	20020718 <--
PRA1	JP 2002-209221		20020718	<--	

AB The battery has a cathode, an anode, and an electrolyte solution; where the electrolyte solution contains 0.5-15 % ionic compound, having an alkyl group bond to an aromatic ring; and 1-10000 ppm aromatic amine, sulfide, phosphite, and/or quinone. The device has the above battery; where the battery is charged at a current of ≥ 1 C.

IC ICM H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electronic device secondary battery electrolyte arom ionic compd;

battery electrolyte arom amine sulfide phosphite quinone

IT Battery electrolytes

Secondary batteries

(electrolyte solns. containing aromatic ionic compds. and aromatic amine, sulfide, phosphite, and/or quinone for secondary batteries)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)

(anode; secondary batteries containing aromatic ionic compds. and aromatic amine, sulfide, phosphite, and/or quinone in electrolyte solns. for electronic devices)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)

RL: DEV (Device component use); USES (Uses)
 (cathode; secondary batteries containing aromatic ionic compds. and aromatic amine, sulfide, phosphite, and/or quinone in electrolyte solns. for electronic devices)

IT 96-49-1, Ethylene carbonate 135-88-6,
 Phenyl- β -naphthylamine 462-06-6, Fluorobenzene 623-53-0
 , Methyl ethyl carbonate 827-52-1, Cyclohexyl
 benzene 1120-71-4, 1,3-Propane sultone 21324-40-3,
 Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing aromatic ionic compds. and aromatic amine, sulfide, phosphite, and/or quinone for secondary batteries)

IT 101-02-0, Triphenyl phosphite 139-66-2, Diphenyl sulfide
 872-36-6, Vinylene carbonate 903-19-5 1126-80-3, Butyl phenyl
 sulfide 7434-44-8, Butyl Diphenyl phosphite 35735-32-1
 52066-84-9 132843-44-9

RL: DEV (Device component use); USES (Uses)
 (secondary batteries containing aromatic ionic compds. and aromatic amine, sulfide, phosphite, and/or quinone in electrolyte solns. for electronic devices)

IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl
 carbonate 827-52-1, Cyclohexyl benzene
 21324-40-3, Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing aromatic ionic compds. and aromatic amine, sulfide, phosphite, and/or quinone for secondary batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

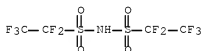


● Li⁺

IT 872-36-6, Vinylene carbonate 132843-44-8
 RL: DEV (Device component use); USES (Uses)
 (secondary batteries containing aromatic ionic compds. and aromatic
 amine, sulfide, phosphite, and/or quinone in electrolyte
 solns. for electronic devices)
 RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 132843-44-8 HCAPLUS
 CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(1,1,2,2,2-pentafluoroethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

L105 ANSWER 35 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN
 AN 2003:930071 HCAPLUS [Full-text](#)
 DN 139:398049
 TI Secondary nonaqueous-electrolyte battery with electrolyte containing
 overcharging inhibitor and sulfur compound
 IN Kotado, Minoru
 PA Mitsubishi Chemical Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2003338317	A	20031128	JP 2002-143492	20020517 <--
	JP 2009206105	A	20090910	JP 2009-142326	20090615 <--
PRRT	JP 2002-143492	A3	20020517	<--	

- AB The claimed battery is equipped with an electrolyte solution containing a compound which reacts under voltage equal to or higher than maximum operation voltage during overcharging, a cyclic carbonate ester having unsatd. bond and/or an acid anhydride, and a S-containing organic compound. The battery provides high safety during overcharging and high-load discharge capacity after storage.
- IC ICM B01M00010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST sulfur compd cyclic carbonate anhydride electrolyte nonaq battery; overcharging inhibitor electrolyte nonaq battery safety
- IT Battery electrolytes
Safety
(electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT Secondary batteries
(lithium; electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT 108-30-5, Succinic anhydride, uses 872-36-6, Vinylene carbonate
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(additive; electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT 66-27-3, Methyl methanesulfonate 67-71-0, Dimethylsulfone 1120-71-4, 1,3-Propanesultone
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent; electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte; electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT 94-52-4, Biphenyl, uses 827-52-1, Cyclohexylbenzene
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(overcharging inhibitor; electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- IT 872-36-6, Vinylene carbonate
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(additive; electrolyte containing overcharging inhibitor and sulfur compound for nonaq. battery)
- RN 872-36-6 HCAPLUS
- CN 1,3-Dioxol-2-one (CA INDEX NAME)



- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate

RL: DEV (Device component use); USES (Uses)
 (electrolyte solvent; electrolyte containing
 overcharging inhibitor and sulfur compound for nonaq. battery)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 21324-40-3, Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
 (electrolyte; electrolyte containing overcharging
 inhibitor and sulfur compound for nonaq. battery)

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene

RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(overcharging inhibitor; electrolyte containing overcharging
 inhibitor and sulfur compound for nonaq. battery)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 36 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2003:853425 HCAPLUS [Full-text](#)

DN 139:352675

TI Nonaqueous electrolyte secondary battery

IN Watari, Yukihiro; Murai, Tetsuya; Mori, Sumio; Ozaki, Hiroki

PA Japan Storage Battery Co., Ltd., Japan; Gs-Melcotec Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 7 pp.

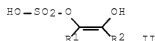
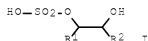
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003308876	A	20031031	JP 2002-113608	20020416 <--
	JP 4313982	B2	20090812		
PRA1	JP 2002-113608		20020416	<--	
GI					



AB The secondary battery comprises a cathode, an anode, a separator, and nonaq. electrolyte containing ≤ 2 weight% of linear diol mono-sulfates having formulas of (I) and (II), where R1 and R2 are H, halogens, and C1-4 alkyl groups. The battery has high initial discharge capacity, and prevents the capacity decrease during charge-discharge cycle.

IC ICM B01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte secondary battery linear diol sulfonate

IT Anodes

Battery electrolytes

Cathodes

Secondary batteries

Separators

(nonaq. electrolyte secondary battery)

IT Carbon black, uses

Fluoropolymers, uses

RL: NUU (Other use, unclassified); USES (Uses)

(nonaq. electrolyte secondary battery)

IT 52-52-4, Biphenyl, uses 827-52-1,

Cyclohexyl benzene 1120-71-4 478784-91-7,

Ethyleneglycol sulfate

RL: MOA (Modifier or additive use); USES (Uses)

(nonaq. electrolyte secondary battery)

IT 96-49-1, Ethylene carbonate 623-53-0, Ethylmethyl carbonate 872-50-4, N-Methyl-2-pyrrolidone, uses 6914-92-7, 1,2-Ethanediol, mono(hydrogen sulfate) 12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Polyfluoro vinylidene 618456-57-8 618456-58-9 618456-59-0 618456-60-3

RL: NUU (Other use, unclassified); USES (Uses)

(nonaq. electrolyte secondary battery)

IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexyl benzene

RL: MOA (Modifier or additive use); USES (Uses)

(nonaq. electrolyte secondary battery)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 623-53-0, Ethylmethyl carbonate 21324-40-3, Lithium hexafluorophosphate

RL: NUU (Other use, unclassified); USES (Uses)

(nonaq. electrolyte secondary battery)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

L105 ANSWER 37 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN

AN 2003:715899 HCAPLUS Full-text

DN 139:247999

TI Nonaqueous electrolyte from fluorine-substituted aromatic compound and aromatic hydrocarbon and lithium secondary battery using the same

IN Hinohara, Akio; Hayashi, Takeshi; Ishida, Tatsuyoshi; Saito, Yuki

PA Mitsui Chemicals Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
P1	JP 2003257479	A	20030912	JP 2002-375083	20021225 <--
	JP 4281895	B2	20090617		
	CN 1430306	A	20030716	CN 2002-160047	20021230 <--
	CN 1207810	C	20050622		
FRAL	JP 2001-400435	A	20011228	<--	

OS MARPAT 139:247999

AB The nonaq. electrolyte comprises a F-substituted aromatic compound, an aromatic hydrocarbon compound made only from C and H, a nonaq. solvent, and a Li-containing electrolyte, wherein contents of the F-substituted aromatic compound and the aromatic hydrocarbon compound in the nonaq. electrolyte are 0.1-20 and 0.1-3 %, resp. Also claimed is the lithium secondary battery which uses above electrolyte and has a mechanism to shut-off the current as the battery temperature or the battery internal gas pressure exceed certain values, resp. The battery exhibited excellent over-charging prevention and excellent high-temperature storage stability.

IC ICM R01M0010-40

ICS R01M0006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte fluorine substituted arom compd arom hydrocarbon; lithium secondary battery

IT Secondary batteries

(lithium; nonaq. electrolyte from fluorine-substituted aromatic compound and aromatic hydrocarbon for lithium secondary battery)

IT Battery electrolytes

(nonaq. electrolyte from fluorine-substituted aromatic compound and aromatic hydrocarbon for lithium secondary battery)

IT 92-52-1, Biphenyl, uses 101-81-5, Diphenylmethane

321-60-8, 2-Fluorobiphenyl 827-52-1, Cyclohexylbenzene

872-36-6, Vinylene carbonate 1120-71-4 34577-43-0

99976-65-6

RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. electrolyte from fluorine-substituted aromatic compound

and aromatic hydrocarbon for lithium secondary battery)
 IT 92-52-4, Biphenyl, uses 827-52-1,
 Cyclohexylbenzene 872-36-6, Vinylene carbonate
 90076-65-6
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte from fluorine-substituted aromatic compound
 and aromatic hydrocarbon for lithium secondary battery)
 RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



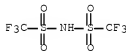
RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,
 lithium salt (1:1) (CA INDEX NAME)



OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L105 ANSWER 38 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN
 AN 2003:56664 HCAPLUS Full-text
 DN 138:109598
 TI Secondary nonaqueous-electrolyte battery containing aromatic additive
 for conducting polymer generation
 IN Kozuki, Kiyomi; Hojo, Nobuhiko; Morikawa, Norimoto; Eda, Nobuo
 PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2003022838	A	20030124	JP 2001-207502	20010709 <--
FR	JP 2001-207502		20010709	<--	

AB The title battery is equipped with a porous polyolefin separator and a nonaq. electrolyte containing an aromatic additive which polymerizes under overcharging at battery voltage higher than maximum working voltage and a part of the generated polymer is oxidized under further increase of voltage to give a conducting polymer by doping of an electrolyte anion to a generated pos. charge for internal short circuit generation. The separator has pore nos. ≤ 100 nos./ μm^2 measured by the author's method based on a.c. resistance. The battery provides high safety under overcharging at high temperature

IC ICM H01M0010-40
 ICS H01M0002-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST arom additive conducting polymer nonaq electrolyte secondary battery; porous polyolefin separator nonaq battery safety

IT Battery electrolytes
 Conducting polymers
 Safety

Secondary battery separators
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

IT Polyolefins
 RL: DEV (Device component use); USES (Uses)
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

IT Secondary batteries
 (lithium; battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

IT 9002-88-4, Polyethylene 21324-40-3, Lithium
 hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

IT 84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses
 101-84-8, Diphenyl ether 110-00-9, Furan 110-02-1, Thiophene
 120-72-9, Indole, uses 627-52-1, Phenylcyclohexane
 17249-80-8, 3-Chlorothiophene
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

IT 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,
Phenylcyclohexane
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(battery containing porous polyolefin separator and
electrolyte containing aromatic additive for conducting polymer
generation)
RN 92-52-4 HCAPLUS
CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



L105 ANSWER 39 OF 42 HCAPLUS COPYRIGHT 2010 ACS on SIN
AN 2002:871625 HCAPLUS [Full-text](#)
DN 138:124937
TI Influence of additives in electrolyte solutions on safety and cycle life
of lithium cells
AU Tobishima, Shin-ichi; Ogino, Yoshiniko; Watanabe, Yu
CS Department of Chemistry, Faculty of Engineering, Gunma University,
1-5-1-Tenjin-cho, Kiryu, Gunma, 376-8515, Japan
SO Electrochemistry (Tokyo, Japan) (2002), 70(11), 875-879
CODEN: EECTFA; ISSN: 1344-3542
PB Electrochemical Society of Japan
DT Journal
LA Japanese
AB The influence of additives in electrolyte solns. on overcharge tolerance and
cycle life of rechargeable lithium cells is examined The electrolyte solution
employed in this work was 1M LiClO4-propylene carbonate. The additives we
studied were 10 organic aromatic compds. Biphenyl is well-known as an

overcharge protection additive. The purpose of this work was to find additives with higher oxidation potential and longer charge-discharge cycle life than biphenyl. Summarizing the results, cyclohexylbenzene and dodecahydridobenzofuran exhibited better performance than biphenyl.

- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST electrolyte additive lithium battery safety
- IT Battery electrolytes
Secondary batteries
(influence of additives in electrolyte solns. on safety and cycle life of lithium batteries)
- IT 84-15-1, o-Terphenyl 91-20-3, Naphthalene, uses 91-64-5, Coumarin
92-52-4, Biphenyl, uses 119-64-2,
Tetrahydronaphthalene 120-51-4, Benzyl benzoate 132-64-9, Dibenzofuran
927-52-1, Cyclohexylbenzene 3842-58-8,
p-Cyclohexylbiphenyl 13054-98-3
RL: MOA (Modifier or additive use); USES (Uses)
(additive; influence of additives in electrolyte solns. on safety and cycle life of lithium batteries)
- IT 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; influence of additives in electrolyte solns. on safety and cycle life of lithium batteries)
- IT 7791-03-3, Lithium perchlorate
RL: DEV (Device component use); USES (Uses)
(electrolyte; influence of additives in electrolyte solns. on safety and cycle life of lithium batteries)
- IT 92-52-4, Biphenyl, uses 827-52-1, Cyclohexylbenzene
RL: MOA (Modifier or additive use); USES (Uses)
(additive; influence of additives in electrolyte solns. on safety and cycle life of lithium batteries)
- RN 92-52-4 HCAPLUS
- CN 1,1'-Biphenyl (CA INDEX NAME)



- RN 827-52-1 HCAPLUS
- CN Benzene, cyclohexyl- (CA INDEX NAME)



- IT 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; influence of additives in electrolyte solns. on safety and cycle life of lithium batteries)
- RN 108-32-7 HCAPLUS
- CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



IT 7791-03-9, Lithium perchlorate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; influence of additives in electrolyte
 solns. on safety and cycle life of lithium batteries)
 RN 7791-03-9 HCAPLUS
 CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L105 ANSWER 40 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2002:693419 HCAPLUS Full-text

DN 137:219563

TI Nonaqueous electrolyte solution and secondary lithium battery using the solution

IN Ueki, Akira; Abe, Hiroshi

PA Ube Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2002260725	A	20020913	JP 2001-61156	20010306 <--
	JP 4352622	B2	20091028		
FRAI	JP 2001-61156		20010306	<--	

OS MARPAT 137:219563

AB The electrolyte solution contains a monosubstituted biphenyl derivative, having a C1-6 alkyl at 4 position, cyclohexylbenzene, and ≥1 of o-terphenyl, biphenyl, and tert-BuPh.

IC ICM H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery electrolyte soln alkyl biphenyl;
 cyclohexylbenzene secondary lithium battery electrolyte soln;
 terphenyl secondary lithium battery electrolyte soln; butylbenzene
 secondary lithium battery electrolyte soln

IT Battery electrolytes

(electrolyte solns. containing monosubstituted biphenyl
 and cyclohexylbenzene for secondary lithium batteries)

IT 84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses

98-06-6, tert-Butylbenzene

RL: DEV (Device component use); USES (Uses)

(aromatic additives containing monosubstituted biphenyl and cyclohexylbenzene in secondary lithium battery electrolytes)

- IT 96-39-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 644-08-6, 4-Methylbiphenyl 827-52-1, Cyclohexylbenzene 5707-44-8, 4-Ethylbiphenyl 21324-40-3, Lithium hexafluorophosphate 37909-95-8, 4-Butylbiphenyl
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing monosubstituted biphenyl and cyclohexylbenzene for secondary lithium batteries)
- IT 92-52-4, Biphenyl, uses
 RL: DEV (Device component use); USES (Uses)
 (aromatic additives containing monosubstituted biphenyl and cyclohexylbenzene in secondary lithium battery electrolytes)
- RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 627-52-1, Cyclohexylbenzene 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing monosubstituted biphenyl and cyclohexylbenzene for secondary lithium batteries)
- RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



- RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L105 ANSWER 41 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2002:294035 HCAPLUS [Full-text](#)

DN 136:328162

TI Nonaqueous battery electrolyte solution and the battery

IN Watanabe, Shoichiro; Goto, Shusaku; Takagi, Masaru; Ishida, Sumihito; Hamamoto, Toshikazu; Ueki, Akira; Abe, Koji

PA Matsushita Electric Industrial Co., Ltd., Japan; Ube Industries, Ltd.

SO PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	WO 2002031904	A1	20020418	WO 2001-JP7434	20010829 <--
	W: CN, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	JP 2002117895	A	20020419	JP 2000-311626	20001012 <--
	EP 1335445	A1	20030813	EP 2001-963395	20010829 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	CN 1242510	C	20060215	CN 2001-815478	20010829 <--
	TW 523946	B	20030311	TW 2001-90124944	20011009 <--
	US 20030118912	A1	20030626	US 2003-333617	20030122 <--
	KR 747382	B1	20070807	KR 2003-701525	20030203 <--
FR	JP 2000-311626	A	20001012	<--	
	WO 2001-JP7434	W	20010829	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

- AB The electrolyte solution, having an electrolyte salt dissolved in a non-aq. solvent, contains ≥ 2 organic compds. having different oxidative polymerization potentials, with the amount of the compound having the lower potential being lower than the compound having the higher potential. The organic compds. are selected from o-terphenyl, triphenylene, cyclohexylbenzene, and biphenyl. The battery is preferably a secondary Li battery.
- IC ICM R01M0610-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST secondary lithium battery electrolyte oxidative polymn potential org compd
- IT Battery electrolytes
(electrolyte solns. containing organic compds. with different oxidative polymerization potentials for secondary lithium batteries)
- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing organic compds. with different oxidative polymerization potentials for secondary lithium batteries)
- IT 84-15-1, 1,1':2',1''-Terphenyl 217-59-4, Triphenylene 259-79-0, Biphenylene 827-52-1, Cyclohexylbenzene
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(electrolyte solns. containing organic compds. with different oxidative polymerization potentials for secondary lithium batteries)
- IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing organic compds. with different oxidative polymerization potentials for secondary lithium batteries)
- RN 96-49-1 HCAPLUS
- CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 623-53-0 HCAPLUS
- CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



- RN 21324-40-3 HCAPLUS
- CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 827-52-1, Cyclohexylbenzene
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (electrolyte solns. containing organic compds. with different
 oxidative polymerization potentials for secondary lithium batteries)
 RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)
 RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L105 ANSWER 42 OF 42 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2001:31794 HCAPLUS Full-text

DN 134:103242

TI Secondary nonaqueous electrolyte batteries and devices using the batteries
 IN Watanabe, Shoichiro; Iwamoto, Kazuya; Ueda, Atsushi; Nunome, Jun; Koshina,
 Hizuru

PA Matsushita Electric Industrial Co., Ltd., Japan

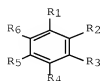
SO PCT Int. Appl., 37 pp., Chemical Indexing Equivalent to 152:243759 (JP)
 CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001003226	A1	20010111	WO 2000-JP4291	20000629 <--
	W: CN, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, II, LU, MC, NL,				
	PT, SE				
	JP 4411691	B2	20100210	JP 1999-184931	19990630 <--
	JP 2001015158	A	20010119		
	EP 1215745	A1	20020619	EP 2000-940876	20000629 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				
	IE, FI, CY				
	KR 2007037749	A	20070406	KR 2007-705770	20070313 <--
PRA1	JP 1999-184931	A	19990630	<--	
	WO 2000-JP4291	W	20000629	<--	
	KR 2001-713915	A3	20011030	<--	
OS	MARPAT 134:103242				
GI					



I



II



III

- AB The batteries have Li containing multiple oxide cathodes, Li intercalating anodes, and a nonaq. electrolyte solution in a solvent containing ≥ 1 organic compound, which has HOMO energy -8.5 to -11.0 eV and LUMO energy -0.135 to 3.5 eV. The compound is preferably a benzene derivative I (R1-6 = H alkyl, aryl, or amino groups, but not all R's being H; and neighboring alkyl groups may join together to form a 5-or 6-membered ring); a substituted ethylene II (R11-14 = H, alkyl, alkoxy, aryl, or oxycarbonyl R15OCO group; and alkyl substituents on the same C atom may joined together to form a 5- or 6-membered ring); or an amine derivative III (R21-23 = alkyl or aryl groups). The devices may be elec. or electronic devices.
- IC ICM H01M0010-40
ICS H01M0002-34
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST Secondary lithium battery electrolyte solvent org compd
- IT Battery electrolytes
(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate 51013-18-4, Methylpyrrolidone
- RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)
- IT 77-73-6, Dicyclopentadiene 80-62-6, Methyl methacrylate 91-21-4, 1,2,3,4-Tetrahydroisoquinoline 91-73-6, N-Phenyl dibenzylamine 92-52-4, Biphenyl, uses 92-54-6, 1-Phenylpiperazine 92-94-4, p-Terphenyl 110-02-1, Thiophene 111-02-4, Squalene 477-75-8, Triptycene 513-81-5, 2,3-Dimethyl-1,3-butadiene 612-71-5, 1,3,5-Triphenylbenzene 613-31-0, 9,10-Dihydroanthracene 620-40-6, Tribenzylamine 695-12-5, Vinylcyclohexane 764-99-8, Diethylene glycol divinyl ether 827-52-1, Phenylcyclohexane 855-38-9, Tris-(4-methoxyphenyl)phosphine 926-02-3, tert-Butyl vinyl ether 992-04-1, Hexaphenylbenzene 1087-02-1, 1,4-Dicyclohexylbenzene 1192-37-6, Methylenecyclohexane 1321-74-0, Divinylbenzene, uses 1610-39-5, Dodecahydrotriphenylene 1633-22-3, [2,2]Paracyclophane 7785-70-8 17249-80-8, 3-Chlorothiophene 18794-84-8
- RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate
- RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)
- RN 96-49-1 HCAPLUS
- CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 105-58-8 HCAPLUS
- CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IT 92-52-4, Biphenyl, uses 827-52-1,

Phenylcyclohexane

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(electrolyte solns. containing organic compound having controlled HOMO
and LUMO energy for secondary lithium batteries)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



OSC.G 0 THERE ARE 0 CAPLUS RECORDS THAT CITE THIS RECORD (0 CITINGS)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L108 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2008:1092900 HCAPLUS [Full-text](#)

DN 149:516453

TI Electrochemistry of Conductive Polymers 42. Mixed Polymer Films as an
Overcharge Inhibitor for Lithium-Ion Batteries

AU Choi, Shin-Jung; Park, Su-Moon

- CS Department of Chemistry and Center for Integrated Molecular Systems,
Pohang University of Science and Technology, Pohang, 790-784, S. Korea
- SO Journal of the Electrochemical Society (2000), 155(10), A783-A787
CODEN: JESQAN; ISSN: 0013-4651
- PB Electrochemical Society
- DT Journal
- LA English
- AB Conducting polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene have been evaluated in 1.0M LiClO₄ in propylene carbonate as an overcharge protecting agent. When the polymer films electrochem. deposited in situ during overcharging processes are overoxidized, the battery cathodes become passivated, lower the current flow, and act as an overcharge inhibitor. Effects of varied compns. of biphenyl and cyclohexylbenzene have been examined by monitoring the rate of film growth by potentiodynamic, electrochem. quartz crystal microbalance, and electrochem. impedance spectroscopic measurements. The results indicate that a mixed polymer film prepared from a solution containing 0.05M biphenyl and 0.15M cyclohexylbenzene provided the best performance in that its passivated form displayed the largest elec. resistance than films grown under other exptl. conditions.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST biphenyl cyclohexylbenzene conducting polymer lithium ion battery overcharge inhibitor
- IT Polymerization
(electrochem.; evaluation of mixed conductive polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene as overcharge inhibitor for lithium-ion batteries)
- IT Conducting polymers
Secondary batteries
(evaluation of mixed conductive polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene as overcharge inhibitor for lithium-ion batteries)
- IT 108-32-7, Propylene carbonate 7791-03-9, Lithium perchlorate
RL: NUU (Other use, unclassified); USES (Uses)
(evaluation of mixed conductive polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene as overcharge inhibitor for lithium-ion batteries)
- IT 51732-94-6, Biphenyl-phenylcyclohexene polymer
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(evaluation of mixed conductive polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene as overcharge inhibitor for lithium-ion batteries)
- IT 108-32-7, Propylene carbonate 7791-03-9, Lithium perchlorate
RL: NUU (Other use, unclassified); USES (Uses)
(evaluation of mixed conductive polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene as overcharge inhibitor for lithium-ion batteries)
- RN 108-32-7 HCAPLUS
- CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



- RN 7791-03-9 HCAPLUS
- CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

IT 51732-94-6, Biphenyl-phenylcyclohexane polymer
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (evaluation of mixed conductive polymer films grown from mixed solns. of biphenyl and cyclohexylbenzene as overcharge inhibitor for lithium-ion batteries)
 RN 51732-94-6 HCAPLUS
 CN 1,1'-Biphenyl, polymer with cyclohexylbenzene (CA INDEX NAME)
 CM 1
 CRN 827-52-1
 CMF C12 H16



CM 2
 CRN 92-52-4
 CMF C12 H10



OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
 RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

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(FILE 'HOME' ENTERED AT 09:52:19 ON 11 MAR 2010)
 SET COST OFF

FILE 'HCAPLUS' ENTERED AT 09:52:28 ON 11 MAR 2010
 L1 1 S US20070141475/PN OR (US2006-588481 OR WO2004-KR257)/APPS NOT
 FILE 'REGISTRY' ENTERED AT 09:58:53 ON 11 MAR 2010

L2 1 S 92-52-4
 L3 1 S 827-52-1
 L4 1 S 92-52-4/CRN AND 827-52-1/CRN

FILE 'HCAPLUS' ENTERED AT 09:59:41 ON 11 MAR 2010

L5 9 S L4
 L6 45566 S L2
 L7 199810 S 1 1 BIPHENYL OR BIPHENYL OR BI PHENYL OR BIBENZENE OR DIPHENY
 L8 1722 S L3
 L9 2719 S PHENYLCYCLOHEXANE OR CYCLOHEXYLBENZENE OR 4 CYCLOHEXYLBENZENE
 L10 3111 S L8,L9
 L11 203214 S L6,L7
 L12 911 S L10 AND L11
 L13 496 S L6 AND L8
 L14 415 S L12 NOT L13
 L15 86 S L12-L14 AND ?ELECTROLYT?
 L16 70 S L12-L14 AND ELECTROLYT?/CW,CT
 E ELECTROLYTE/CT
 E E3+ALL
 E E2+ALL
 L17 116763 S E4+NT
 L18 55978 S E10+OLD,NT OR E12+OLD,NT OR E14+OLD OR E23+OLD,NT
 E E28+ALL
 L19 27244 S E8+OLD
 E E8
 E E52+ALL
 L20 11787 S E3+NT
 E BATTERY/CT
 L21 71457 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7+OLD,NT
 E E8+ALL
 L22 12570 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT
 E BATTERIES/CT
 E E3+ALL
 L23 171433 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT
 L24 87 S L12-L14 AND L17-L23
 L25 74 S L12-L14 AND H01M/IPC, IC, ICM, ICS, EPC
 L26 92 S L15-L16, L24, L25
 L27 31 S L26 AND (LI OR LITHIUM) (L) SALT
 L28 9 S L26 AND PY<=2006 NOT P/DT
 L29 58 S L26 AND (PY<=2006 OR PRY<=2006 OR AY<=2006) NOT L28
 L30 67 S L28, L29
 L31 25 S L26 NOT L30
 SEL RN L26
 DEL SEL

FILE 'REGISTRY' ENTERED AT 10:10:23 ON 11 MAR 2010

FILE 'HCAPLUS' ENTERED AT 10:10:23 ON 11 MAR 2010

L32 TRA L26 1- RN : 1603 TERMS

FILE 'REGISTRY' ENTERED AT 10:10:25 ON 11 MAR 2010

L33 1603 SEA L32
 L34 56 S L33 AND (LI/ELS OR LITHIUM)
 L35 18 S L33 AND 7439-93-2/CRN
 L36 56 S L34, L35
 L37 38 S L36 NOT (IIS OR AYS)/CI
 L38 12 S L37 AND (C4HF10NO4S2 OR F6P OR C2HF3O2 OR FH03S OR ASF6 OR C2
 L39 12 S L37 AND (FLI OR C24H20B OR C2H4O2 OR C6HF5O3S OR HNO3 OR C2H2
 L40 1 S L37 AND CHNS
 L41 13 S L37 NOT L38-L40

L42 1 S L41 AND LI/MF
 L43 12 S L41 NOT L42
 L44 7 S 96-49-1 OR 108-32-7 OR 96-48-0 OR 105-58-8 OR 616-38-6 OR 623
 L45 20 S L33 AND CARBONIC ACID NOT L44
 L46 18 S L45 NOT (CO2 OR C2H4)
 L47 33 S L33 AND OC4/ES NOT L44, L45
 L48 1 S L47 AND C5H8O2

FILE 'HCAPLUS' ENTERED AT 10:22:40 ON 11 MAR 2010

L49 57 S L38-L40 AND L26
 L50 1 S L42 (L) SALT AND L26
 L51 64 S L27, L49, L50
 L52 41 S L51 AND L30
 L53 22 S L52 AND ?SOLVENT?
 L54 34 S L52 AND L44, L46, L48
 L55 37 S L53, L54
 L56 41 S L52-L55
 E AHN/AU
 L57 5 S E3
 E AHN S/AU
 L58 584 S E3, E10
 E AHN SOON/AU
 L59 58 S E13
 E AHN SOONHO/AU
 L60 26 S E3
 E LEE/AU
 L61 40 S E3
 E LEE J/AU
 L62 2064 S E3
 E LEE J H/AU
 L63 2457 S E3-E5
 E LEE JAE/AU
 L64 29 S E3
 E LEE JAE H/AU
 L65 16 S E3, E4
 E LEE JAE HYUN/AU
 L66 160 S E3
 E LEE JAEHYUN/AU
 L67 7 S E3
 E CHO/AU
 L68 6 S E3
 E CHO J/AU
 L69 189 S E3, E13
 E CHO JEONG/AU
 L70 96 S E3, E45
 E CHO JEONGJU/AU
 E LEE H/AU
 L71 1090 S E3, E10, E11
 E LEE HO/AU
 L72 236 S E3, E17
 E LEE HOCHUN/AU
 L73 24 S E3
 E SON/AU
 L74 2 S E3
 E SON M/AU
 L75 10 S E3, E11
 E SON MI/AU
 L76 24 S E3, E21
 E SON MIYOUNG/AU
 L77 1 S E3

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E KIM/AU
L78      52 S E3
E KIM H/AU
L79      4151 S E3,E20,E24
E KIM HYEONG/AU
L80      4 S E3
E KIM HYEONG J/AU
L81      262 S E3,E6
E KIM HYEONGJIN/AU
L82      1 S E3
E LEE H H/AU
L83      169 S E3-E6
E LEE HAN/AU
L84      26 S E3
E LEE HAN H/AU
L85      98 S E3,E6
E LEE HANHO/AU
L86      10 S E3
E HIS
L87      50015 S LG?/CO,PA,CS
E LG/CO
E E47+ALL
E E1+ALL
L88      46787 S E2+RT OR E78-E85 OR E2-E85/PA,CS
L89      63166 S L1,L57-L88
L90      10 S L89 AND L12-L14
E AHN SUN/AU
L91      18 S E3,E11,E13
E AHN SUNHO/AU
E LEE JAE HEON/AU
L92      76 S E3
E LEE JAEHEON/AU
L93      17 S E3
E SON MI YEONG/AU
L94      9 S E3
E SON MIYEONG/AU
L95      1 S L12-L14 AND L91-L94
L96      10 S L90,L95
L97      2 S L96 NOT P/DT
L98      1 S L97 AND BATTER?
L99      7 S L96 AND (PY<=2006 OR PRY<=2006 OR AY<=2006) NOT L97
L100     8 S L98,L99
L101     44 S L56,L100
L102     23 S L51 NOT L101
L103     0 S L102 AND PY<=2006 NOT P/DT
L104     0 S L102 AND (PY<=2006 OR PRY<=2006 OR AY<=2006)
L105     42 S L101 AND (BATTERY OR ELECT? CELL)
L106     2 S L101 NOT L105

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FILE 'REGISTRY' ENTERED AT 10:36:36 ON 11 MAR 2010

FILE 'HCAPLUS' ENTERED AT 10:36:57 ON 11 MAR 2010

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L107      1 S L5 AND BATTERY
L108      1 S L107 AND L36,L38-L40,L44,L46,L48

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